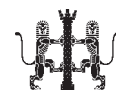


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The RIBA Journal

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J January 2015



New York illuminations

Grimshaw makes light work of station interchange

14

Holy Moses

OMI parts the naves in Bolton

06

Full to the BIM

Is the industry ready for 2016?

28

Heroes and villains

Will Wiles on the skyscraper as star

45

Beyond the building

Will Alsop uncut

48

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1

Buildings



14

Comment

05

In praise of the large span, which has enabled two very different projects to thrive

Church

06

A derelict Victorian church in Bolton has been reconfigured by OMI as a community centre

School

10

ORMS brings balance to architectural styles at Uppingham School with its new science centre

Station

14

Grimshaw and Arup are helping turn New York's financial district into an all round neighbourhood with their Fulton Center, lit by an incredible oculus

Refurbishment

22

Post BBC, Bush House has been cleared of its unplanned internal modifications in a refurbishment by John Robertson Architects that restores its Art Deco glory

2

Intelligence



27

Q&A

27

Roger Scruton talks about his new role helping to safeguard design for new homes

BIM

28

Level 2 BIM will be mandatory on public schemes within a year. Are we ready?

Research

30

An early look at the conclusions of the RIBA inquiry into practice-based research

Legal

32

An appeal has changed the ruling on a sign-off case, which is good news for architects

Diary

34

Maria Smith watches fee undercutting and has a fearsome vision of the future

Roof Lines

37

3

Culture



52

Comment

43

The best sort of internationalism is one that's local

Wiles & Wainwright

45

Will Wiles wonders why cinema casts the tower block as the villain

President

47

This is the year of procurement: speak up to make a difference

Profile

48

Will Alsop might have a reputation as a maverick, but he has plenty of projects on the go

Exhibition

52

Letters bring to life the revolutionary art and poetry of Ian Hamilton Finlay

Obituary

55

David Mackay – practitioner, policy advisor, writer and much more

Exchange

56

Opinion and comment from readers

Steel intelligence

59

Parting shot

74

William Morris's Red House at Bexleyheath, the 'beautifullest place on earth'

On the cover
Fulton Center
Photograph
James Ewing



abc
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1: Buildings

The 16m wide nave of a Victorian church in Bolton and the shopping centre proportions of the Fulton Center in New York appear to have little in common. But both are cavernous in their context and rely on a clear span for their impact and use. All Souls Bolton achieved this in the 1880s with a steel structure. Today that span and the absence of extra rows of columns has allowed a radi-

cal new insertion. Back in the 19th century, ecclesiastical architect to the north Paley and Austin, hid the steel behind timber. That sort of exposed engineering bravura was left to stations. And it still is enjoyed by stations – as Fulton Center, a new transport hub in New York shows, carrying on that engineering-as-decoration tradition. There, apparently hanging above the atrium, is a

parametrically-designed, artistically-driven cable-net structure loaded with light-bouncing aluminium panels. Like Grand Central Station's roof with its zodiac, in the same city, the best of transport and ecclesiastical architecture is invested with the mythology of looking up. Engineering and iconography go hand in hand: architecture needs stories as well as structure. ●

Below Beautiful timber roof
hiding the engineering at All
Souls Church, Bolton, page 6.



DANIEL HOPKINSON

All Souls Church, Bolton
OMI

Words Eleanor Young

Photograph Daniel Hopkinson

The fundamental problem with conserving churches is that the very space that you most wish to preserve is the one that most often has to be sacrificed for a new use. In Bolton the 1880-81 parish church of All Souls fell on hard times long ago. Closed since 1986 yet still a strong physical presence in this community, its hilltop position ensured that even in dereliction it rivalled its neighbouring green roofed mosque for prominence. But precedents are few and far between.

Many churches are sliced by new floors and then chopped up into little rooms for housing, others partitioned off to provide loos, meeting spaces and the cellular paraphernalia that are the concomitants of mod-

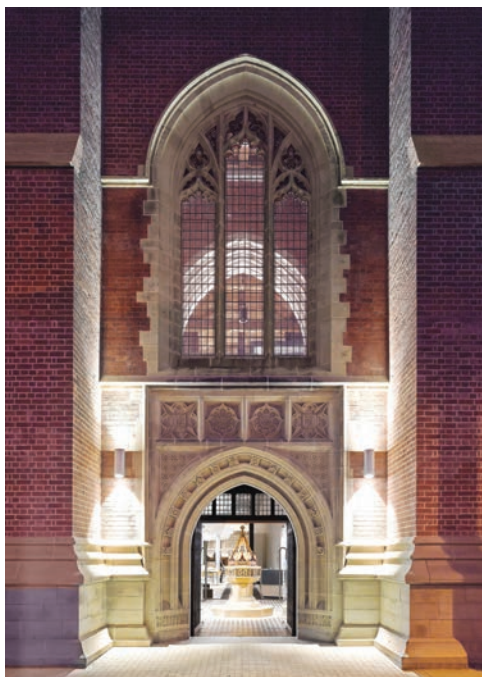
ern use. But All Souls is looked after by the Churches Conservation Trust so ensuring that the grand nave of this grade II* listed building could still be appreciated was essential. The Garden Museum and Matthew Lloyd's 'ark' St Paul's Old Ford, both in London, perhaps suggested a way. Manchester based OMI was selected in competition for the modern insertion, and worked alongside Alan Gardner and Associates which oversaw the historic repair. It is not gimmicky but it is subtle in the way the new volumes work with the historic church.

So first things first: yes, OMI did have to insert a series of cellular spaces into the nave (although the loos have been tucked in to the old north door lobby). The plan is for a specially set up local social enterprise to run All Souls as a community centre with workspaces, café, exhibition and small conference suite for local use and perhaps businesses in

Below A modest doorway for a church of this size.

Below right Keeping the new clear of the original, use will hopefully prove this slim space is more than an extremely high corridor.

Right Sudden lofty space after the low entrance, three storeys of new workspaces on one side of the aisle cafe and seminar room on the other.





Manchester too. Critically, these also have to help pay for the upkeep. Imagining a building within a building, OMI has kept the insertion clear of the church fabric. While its design sits on both sides of the nave it is split along the aisle, only bridges interrupting the length of the church and the views of its lofty timbered ceiling.

Just as the solid majesty of All Souls amid the tight terraced streets surprises, so too does the entry into the building with a sudden opening up of the volume. Stepping up lightly from the entrance is a staircase embedded in a plinth of reclaimed floorboards. Over the open café space sits the largest volume – a large seminar room that looks out, gloriously, to the old altar and the stained glass of the east window. Turn off the lights and you could be in the eye of a camera. Alternatively, pull down the screen and you are ready for a perfectly delivered Powerpoint, albeit in a non-orthogonal room.

Much of the pleasure of this reworked church is in the way the circulation displays the building to you, confronting you with leaded windows, revealing the balcony of the bell loft, encouraging you to step out to peer

around the new building back to the altar on a little steel plate. Looping through the first floor rooms is something the practice saw as a visitor experience – it likes to walk people through its buildings, to tell them an architectural story. But this can be complex and insecure in a lightly staffed building that's open to all comers; just after opening it the stairs were roped off and it seems unlikely that many visitors will get to enjoy this tour.

And unfortunately the effort put into these small things makes the whole harder to read, the cuts and complexities messier. It is not helped by the few grand gestures OMI threw in. An interruptive vertical fin and a surface of shiny golden shingles, facing the altar but cladding the escape stair, seem to be cheaply trying to claw back some of the glory from the church; continuing the understatement and subtlety of other elements would have made a stronger piece. But volumetrically, with its asymmetrical section, this is an interesting and intelligent design. The Churches Conservation Trust – which it is entrusted with over 340 churches – sees this project as a model for redundant inner city churches. It should be. ●

IN NUMBERS

£4,900,000
project cost

£2,998,963
construction contract cost

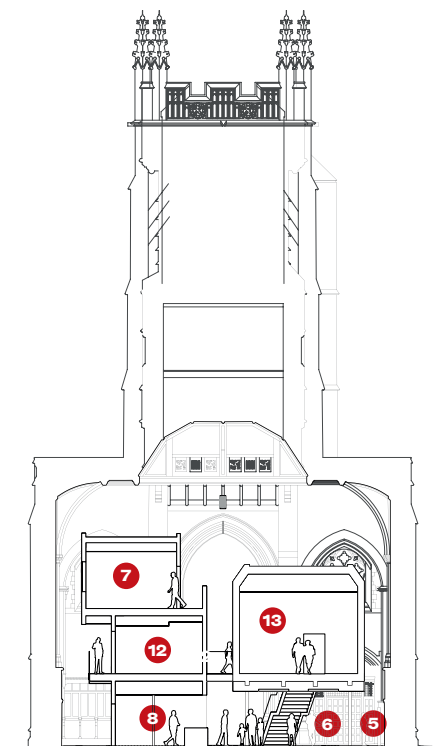
324m²
newbuild only, GIFA

1168m²
including existing church,
GIFA

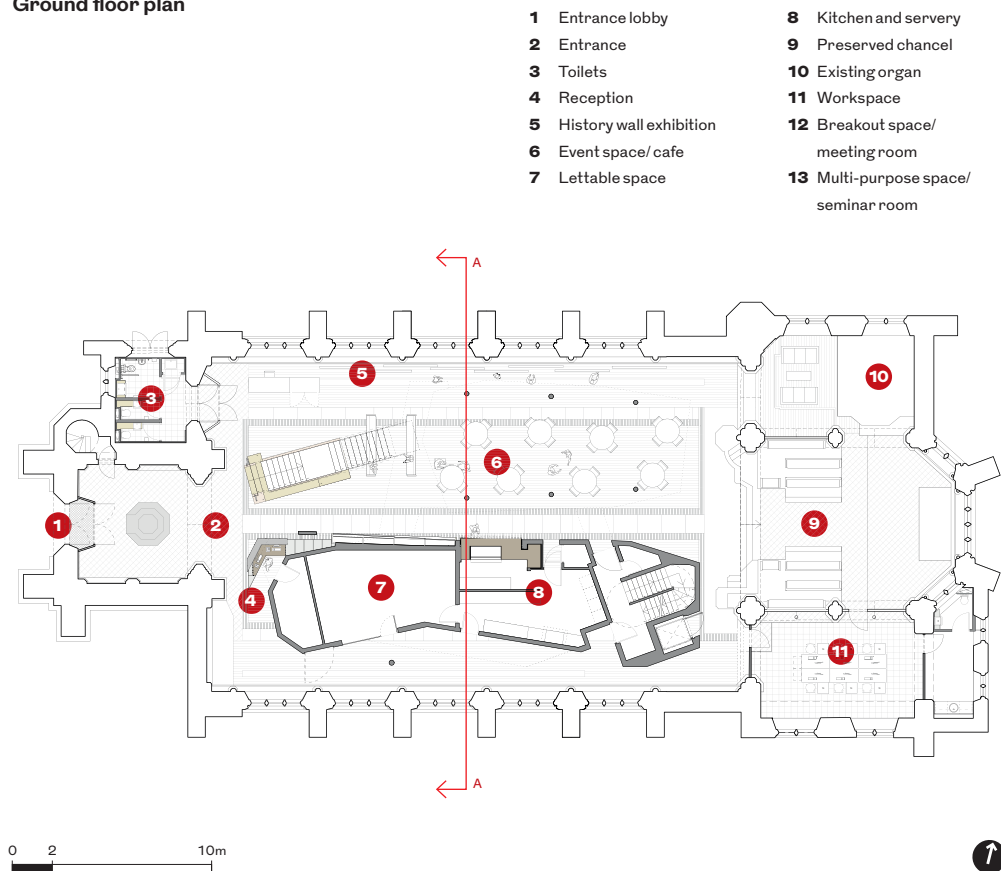
£2,568
GIFA cost per m² including
existing church

Client The Churches Conservation Trust & All Souls Bolton
Architect OMI Architects
Historic building surveyor Alan Gardner Associates
Project manager Buro 4
M&E consultant Hoare Lea
Structural engineer Scott Hughes Design
Fire engineering consultant Hoare Lea Fire
Exhibition design Gaby Porter Associates

Section AA

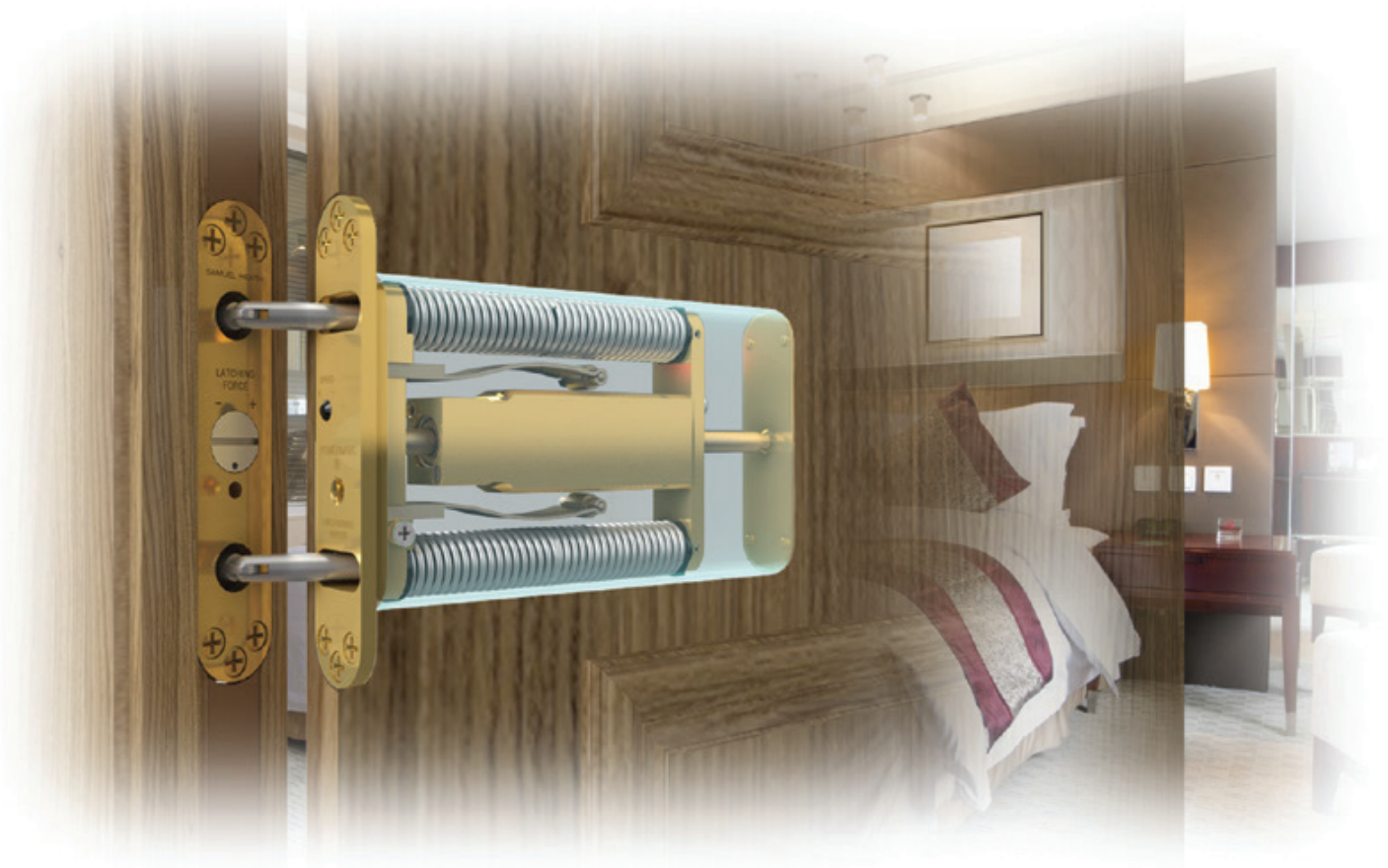


Ground floor plan



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Uppingham School Science Centre
ORMS

Words Eleanor Young

Photographs Kilian O'Sullivan

The small soft-stoned high streets of Rutland start to appear as we travel towards the market town of Uppingham, the Clipsham golden and warm-edged, the ironstone redder as if to reflect a non-existent sunset. Drawing into the town the cottages continue, with larger buildings now as this 800 pupil boarding school hoves into site. Like Oxbridge quads and courts they don't give much away to the street, but still sit like warm memorials to the nobility and history of the establishment.

It is not something the Western Quad, further along the road, has ever borne the weight of. And its new science centre, the school's third building by ORMS, has a markedly different character to those around it. Here, its edges clipped into shape, the Clipsham stone is applied to a modernist facade with classical overtones, cast stone edges framing Clipsham panels, colonnades and an urbane grid and regularity.

This building strives for a Chipperfield maturity and has a diagram of labs, connections and lecture theatre, echoing Stanton Williams' Sainsbury Laboratory in Cambridge – though drawn before that was out of the ground. L-shaped, it creates and pro-

jects a new courtyard. But unlike its historic counterparts, this building opens its heart to the town with big windows onto the grand spiral staircase and gallery, the green of the two-storey greenhouse behind the glass of the upper levels as intriguing as the stair. No-one here would use the word shop window but that is its effect on the quiet road.

Most of the smart suited boys and girls in long winter skirts will be more interested in the other side of the building, its stone-encased grass rectangles looking onto the arts buildings. Designed by ex-pupil Piers Gough, it is set up for civilised discourse between arts and science with a reordering by ORMS.

It is easy to remember this as a handsome,



IN NUMBERS**£14m**

total contract cost

£3,110GIFA cost per m²**5,125**Area in m²Design & Build
form of contract



neutral colour corner of a quad – a unifying force. But as with a sliver of limestone under a microscope, the detail is less simple. The three west-facing storeys of the science laboratories are brick-clad, a fairly meaningless gesture towards nearby domestic architecture in this context, but nicely done. Then a box of anodised aluminium, ‘the jewel’, sits on the roof with the library facing out. This same material also pops up over the lecture theatre, though never looking the same as the precise angle of light changes it massively. Add to this multicoloured stripes in behind

the colonnade when the lecture theatre is shut down, and the simple turns complex.

If the exterior takes tradition and sharpens it up, the interior takes barriers and breaks them down. Or so it is intended. The taxonomy of the building is a little confusing. It is named a Science Centre but serves morning snacks to all at the buttery, dishes out extra-curricula learning in the already well-used lecture theatre, and has a resource centre and gallery space that speaks to the art department as much as science masters – and to those who like stylish stairs.

For the headmaster this is all about making science a central part of a school that is traditionally strongest in arts (for alumni see the pages of *The Stage*, the *Daily Mail*, or just turn on the TV). It is also about preparing students for university, though with its generously proportioned classrooms, circulation and beautiful stair they would only get this experience at top flight universities or, in later life, in a high spec office. For both school and town it creates a very grown up language for this century. ●

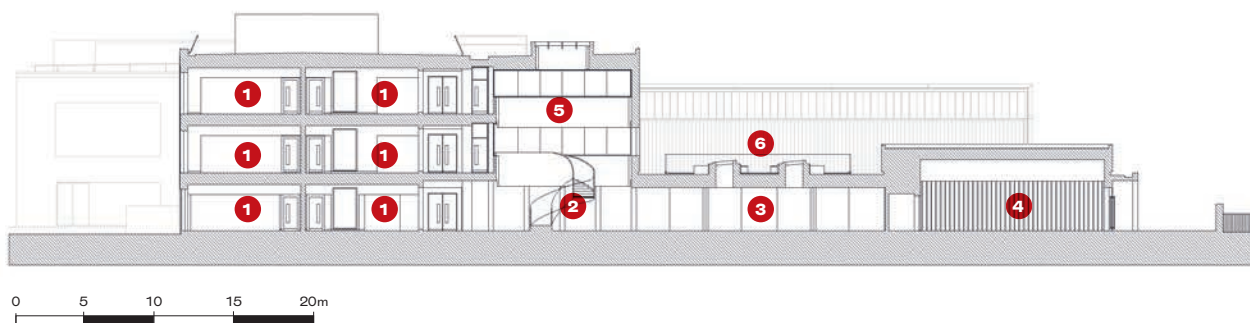
See more images at ribaj.com

Top left Off to lessons.

Top right A very open building with science on display.

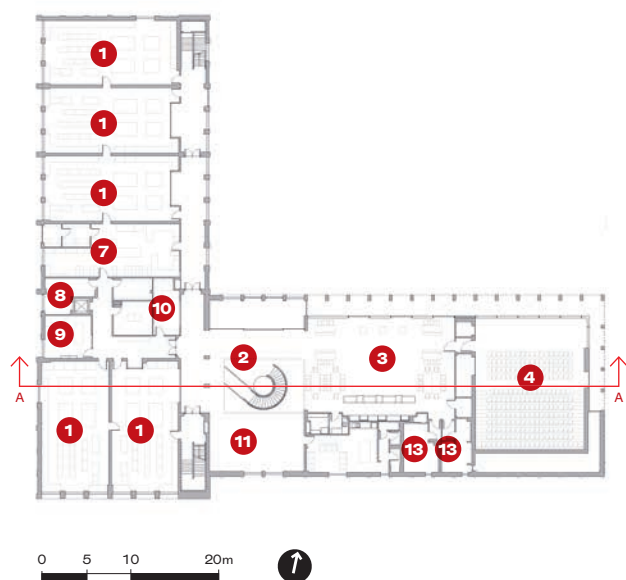
Below left The stair as centrepiece to a space that has deliberately been left acoustically lively.

Section AA

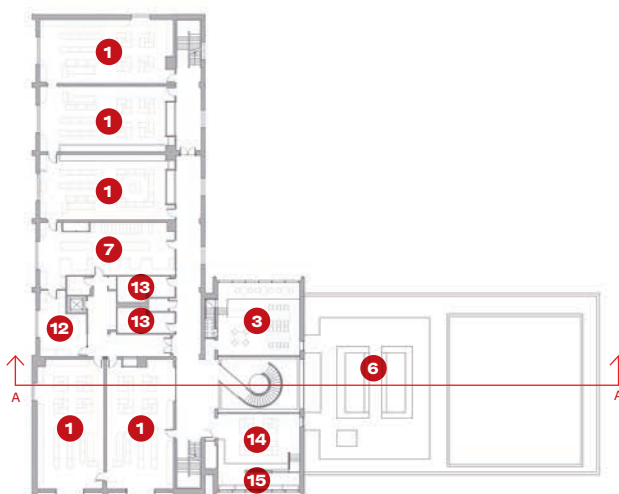


- 1 Labs
- 2 Atrium
- 3 Buttery
- 4 Lecture theatre
- 5 Learning research centre
- 6 Terrace
- 7 Prep room
- 8 Deliveries
- 9 Staff office
- 10 Head of science office
- 11 Gallery
- 12 Staff comms room
- 13 WCs
- 14 Project room
- 15 Greenhouse

Ground floor plan



First floor plan



Credits

Client Uppingham School
Development adviser Abstract Securities
Structural engineer Brookbanks Consulting
Mechanical and electrical and acoustics Ramboll
PM/QS AECOM
Science input Abell Nepp
Landscape architect Robert Myers Associates
Artist Daniel Sturgis represented by Modus Operandi
Contractor Bowmer & Kirkland
M&E sub-contractor Derry Building Services

We'll make Manhattan

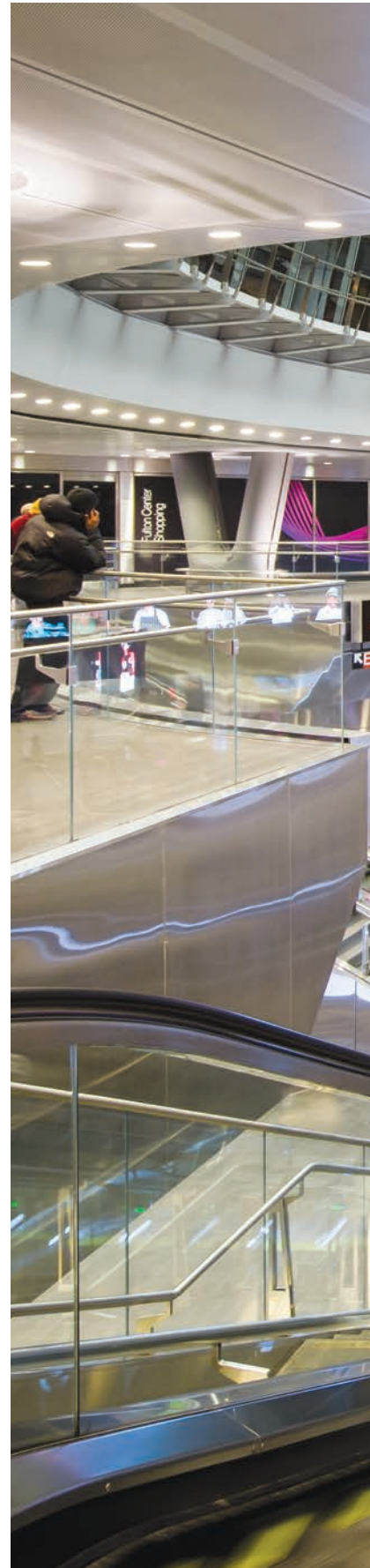
Grimshaw's grand Fulton Centre is part of a rebirth of Lower Manhattan as a social and residential district

Words: Ian Volner Photographs: James Ewing



Left Grimshaw's interchange incorporates the 1889 Corbin building.

Right Inside, the previous subway warren is replaced by a toplit descent to the underworld. Shops and restaurants will occupy the upper levels.





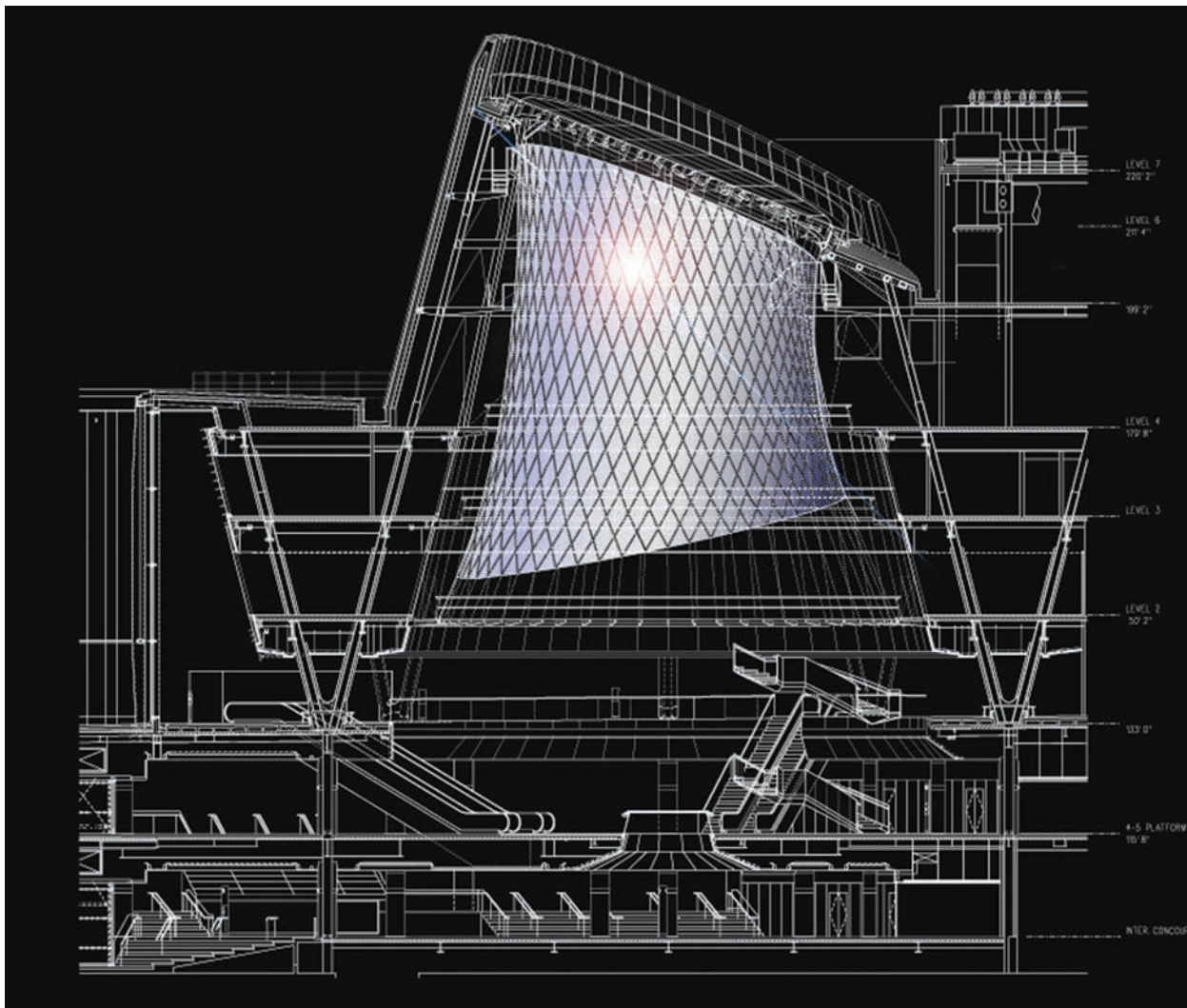
Over the course of the last century or so, Lower Manhattan has acquired a fairly well deserved reputation as the place where fun goes to die. New York's oldest neighbourhood – the seed from which the rest of the city sprang, the original encampment of its first Dutch settlers and now home to its highest concentration of skyscrapers – has long been considered its least interesting, a bland commercial district by day and an un-peopled dead zone by night. EB White, in his famous 1949 essay *Here Is New York*, describes three types of Gothamites: the born-and-bred native, the immigrant from the provinces, and the commuters, 'the locusts' who descend on the city during working hours and flee it come five o'clock. The Financial District (FiDi) is the great grove of the locusts, picked bare by their constant comings and goings.

But that's changing as new residential developments, restaurants and stores have sprouted alongside the looming office towers. The terrorist attacks of 9/11 brought a renewed focus and enormous government

investment to the area around the World Trade Center, and a decade later that investment is starting to bear fruit. No longer the land of Bartleby the Scrivener and the Man in the Gray Flannel Suit, FiDi is coming back to life, and behind its improved image an even newer transit infrastructure will make it more accessible to the city's residents while corralling the commuter-locusts into a more manageable swarm.

'It's a transfer point for 300,000 people,' says Vincent Chang, partner at Grimshaw Architects. The UK firm, in collaboration with Arup Associates, has just put the finishing touches to the Fulton Center, a major node in the citywide subway system in the very heart of the Financial District. The gleaming low-rise glass box, topped by a strikingly sculptural funnel-dome, was officially opened in November, and besides making a welcome addition to the streetscape along lower Broadway it's quickly bearing out its designers' promise to reduce congestion in the passageways beneath it. 'Well over a third of downtown Manhattan's workforce

FiDi is coming back to life, and behind its improved image an even newer transit infrastructure will make it more accessible



Left The above-ground superstructure is all about the oculus, designed with Arup and artist/designer James Carpenter.

Right The living daylights: the oculus imparts a sense of grandeur that goes beyond mere function.



uses the subway,' notes Chang, and for his firm and their collaborators the question was, 'How could we combine intuitive wayfinding for all those people, and give it the nature of a civic space?'

The problem, as Chang observes, is rooted in the history of New York and its mass-transit network. 'Many of the lines were built by competing entities over 100 years ago,' he says, and the city's subway map shows the result: New York is an unruly tangle of routes that intersect en masse at points where commercial activity is highest, in particular in Lower Manhattan. Not only that, but because the original builders had no interest in helping their passengers to get to competitors' trains, interchanges were often only constructed later, and can be incredibly difficult to navigate. The Fulton hub marks the point where trains 4 and 5 – the only two serving the Upper East Side of Manhattan – connect with the A and C trains, the longest line in the system. 'All those passengers were funnelled through two narrow transit ways,' Chang points out. Very skinny

platforms meant rush hour crowding could make it all but impossible to get in or out of the packed train cars.

The consequences for New York could be felt well beyond the confines of the Financial District. Craig Coville led the Fulton Centre project from the Arup side, beginning in late 2001 with a study on how renovation of the Fulton Street station could affect the New York subway as a whole. They realised that 'the traffic at Fulton dictated the pace at which all trains on 4/5 line can run,' says Coville: the congested transfer point was the greatest bottleneck in the entire line, reducing the frequency of service all the way along from the northern Bronx to southernmost Brooklyn. 'The solution was to reduce the time that the trains had to sit idle,' Coville explains. Arup proposed a list of changes that would widen the passageways to the A/C lines, increase platform space for waiting passengers, and open newer and larger surface-level entrances to clear people out of the station as quickly as possible.

As the project progressed and Grimshaw was

Over a third of downtown Manhattan's workforce uses the subway. How could we combine intuitive wayfinding for all those people, and give it the nature of a civic space?



Left 'An architectural appurtenance to a largely invisible system'.

Right English in New York: the classic Massimo Vignelli signage greets travellers.

IN NUMBERS**£1.4bn**
total cost**17,556m²**
total area**6,000m²**
retail area**300,000**
passengers daily**33m**
height of atrium

brought on board in early 2003, the question of what to do became less pressing than how to do it. Several logistical hurdles presented themselves, beginning with the problem of funding as municipal budgets fell drastically in the wake of the 2008 financial crisis. That stumbling block was overcome in 2009, when the Obama administration passed the American Recovery and Reinvestment Act (popularly known as the stimulus bill), bailing out the project to the tune of \$500m. Next there was the problem of the structure's neighbours: the original proposal involved demolition of the adjacent Corbin building, a gorgeous 1889 American Romanesque pile that the designer was loath to tear down. A landmark review saw it 'quickly incorporated it into the project,' says Covil, and the consultant retained to document its dismantling was happily promoted to oversee its preservation as its basement level became a part of the Fulton Centre's subterranean warren. Finally, and perhaps most dauntingly, the Metropolitan Transit Authority—

the quasi-public agency that oversees New York's subways—imposed a strict order on the design team, forbidding any interference in the continuous 24-hour operation of the subways during construction. 'They said it over and over,' recalls Covil, 'Do not impact our revenue service!' The interventions would have to be done while ensuring trains still ran more or less on time.

But the completed Fulton project has an even more remarkable aspect. This is without doubt the projecting oculus that tops the steel-frame above-grade structure and directs light down into the lower reaches of the space. Created in collaboration with artist and designer James Carpenter, the glass-topped cone – dubbed the Sky Reflector-Net – illuminates the main concourse of the transit center and the multi-use retail levels that surround it. Its prime purpose is functional, daylight acting as an ideal wayfinding agent to help users orient themselves in the cavernous interior. But the glittering rotunda is also key to what Chang calls 'the narrative about the combination of art and architecture' that



the architect deployed to take the project beyond mere infrastructure to a real civic asset, one in the tradition of Grand Central Terminal and the original Penn Station.

On that score, the Fulton Center can largely be ranked a success, albeit a qualified one. In total the renovation cost a startling \$1.4bn, a price tag that seems out of proportion to what is, at bottom, a very nicely-lit subway station that affords a slightly faster ride on a single train line. As an architectural appurtenance to a largely invisible system, the Fulton building seems somewhat extraneous—especially since it's only a few blocks from where Santiago Calatrava is finishing work on another transit hub, connected by passageway to Fulton, in the shadow of the new World Trade Center at Ground Zero. Grimshaw's building is (thankfully) a great deal more disciplined than its bird-like neighbour, but it does seem somewhat redundant. It would appear that the competition between private companies of a century ago has only given way to competition between bureaucracies: the WTC hub is a project of the Port

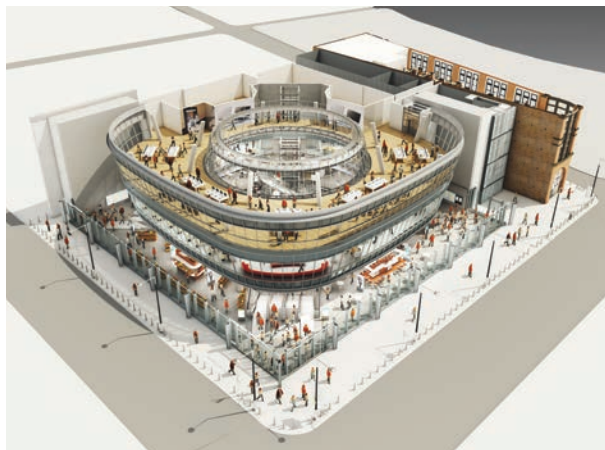
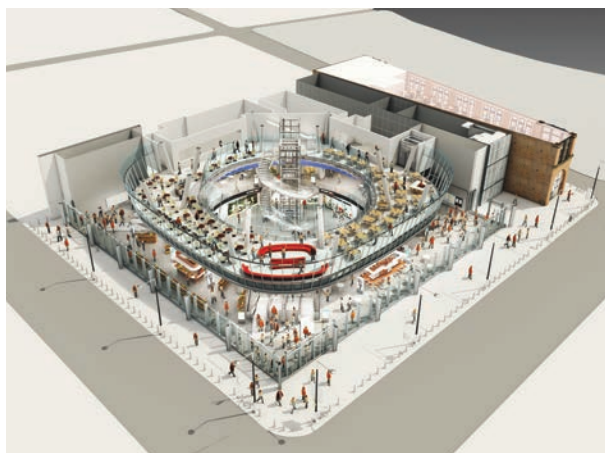
Authority, and not to be outdone, the MTA has insisted on having its own shiny new station, too.

On the other hand, the fact that everyone now seems to want part of the action in the Financial District is encouraging. With the Grimshaw and Calatrava buildings, and existing tunnels running some way to the east, one can now walk underground almost end to end through the entire area and pop out for drinks at fine new bars, at art galleries for an evening's vernissage, or for a dinner party at one of the new apartment buildings that are finally making it feel like a neighbourhood. All grand infrastructure projects tend to pre-empt their own utility, and seem lavish or foolhardy only briefly; their logic, typically, is of the 'If you build them, They will come' variety. The Fulton Center is built, and 'They' are coming—and for practically the first time since Peter Minuit made landfall, they're coming to Lower Manhattan. ●

Ian Volner is a contributing editor at *Surface* and *Architect* magazines. He lives in Manhattan

Credits

Architect Grimshaw
Client Arup/MTA – New
York City Transit
Completion 2014



Left How it stacks up: transit space beneath, retail levels above. Clockwise from top left: platform, level 2, level 3 and street.



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No beating about the Bush

In refurbishing the BBC's former home, Bush House, and its neighbours, John Robertson Architects' much-needed internal rationalisation still stays true to its Art Deco roots

Words: Jan-Carlos Kucharek Photographs: Hufton & Crow

When Bush House in London opened in 1930, its brash 'big business classicism' of stripped Portland ashlar covering a steel frame would have been considered state of the art. Designed for American warehousing magnate Irving T Bush, coming in at over £2m it was hailed as 'the most expensive building in the world' on completion. Its architect was US firm Helmle Corbett, which had made a name for itself in New York, building a neo-gothic tower for the same client, and whose Harvey Corbett would go on to design the Radio City Hall at the Rockefeller Centre. Bush's desire was for a statement

building that would make the American's mark on the city, terminate Kingsway and make Aldwych a new commercial district for the capital.

But it is for its tenant that Bush House is best known. Its huge recessed portico, topped by a sculpture symbolising Anglo-American links, became synonymous with the BBC's World Service, which moved there in 1941 after its Portland Place HQ was bombed. Expanding to fill the three neighbouring blocks, which completed in 1935, the BBC occupied the island complex for 70 years, before moving out when the lease was up in 2012. This

gave Japanese owner Kato Kagaku the chance to effect a £60m, 27,600m² refurbishment to bring it in line with modern office demands – a job entrusted to John Robertson Architects.

The building JRA inherited from the BBC was quite a different beast internally. Bush House is grade II listed, and the three other buildings forming the island complex – Melbourne House and the north east and south east wings – sit within the Westminster Strand Conservation Area. Visually, they connect to the neighbouring Edwardian Australia House and India High Commission well enough to make them 'Buildings

Bush House, sitting at the centre of Irving T Bush's Aldwych complex, terminates the view from Kingsway.



Bush House's generous Art Deco-style lobbies have been restored and upgraded.

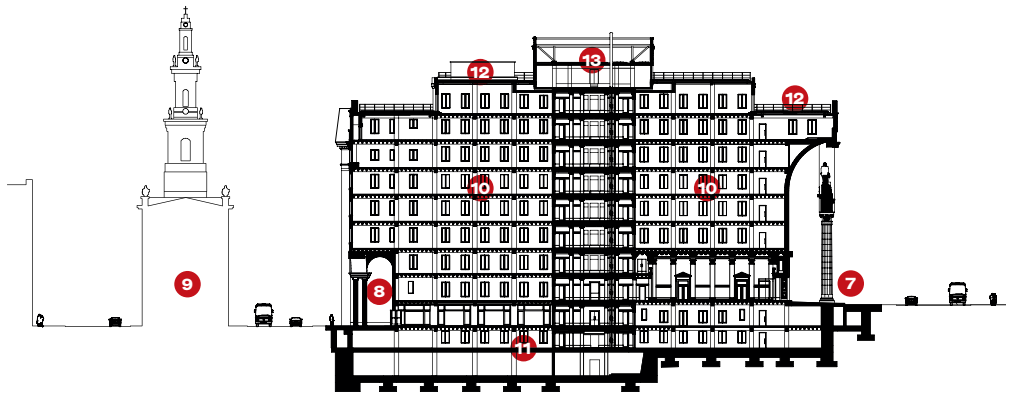


of Merit', so both Westminster Council and English Heritage were keen to see how JRA would deal with it. The firm was sensitive to the buildings' weight of history; Charles de Gaulle gave his wartime Free French radio broadcasts here and BBC employee George Orwell disaffectedly occupied 'Room 101'.

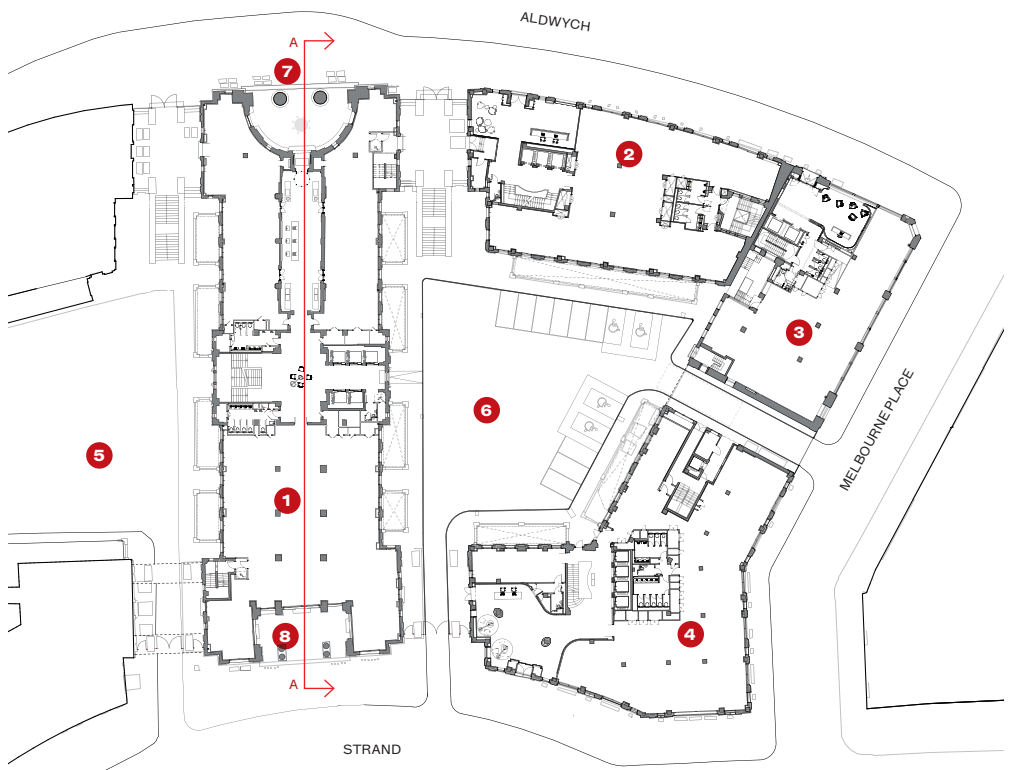
Not that JRA could find that room when it took possession of the building, it having long since been lost in countless reconfigurations of the spaces. It seems even the firm wasn't quite prepared for what it found. 'Over the 70 years they could never stop broadcasting so all internal changes were carried out on an ad hoc basis', explains JRA project director Andy Hill. 'It was a labyrinth of internal partitions, with soundproof studios sitting in the middle of floor plates and warrens of rooms around them-there was no sense of any open plan space whatsoever.' But while removing these accretions and bringing the buildings back to their raw structure, the firm wanted to keep what it could. 'The firm's mantra is contextual modernism - we wanted to take the best of the original fabric and work with it. Each building had its own character and identity and we thought to use that to create bespoke entrance, circulation and washroom areas,' adds Hill. That meant letting the building speak where it could and augmenting that with a limited palette of new materials that would repeat throughout the complex.

JRA carried out a full abseil survey externally, and apart from the need to clean it, only identified a few coping stones and Melbourne House's external stair as problematic. Internally it was another story however, requiring an initial £7m programme of works to remove asbestos from the basements and to strip the office spaces back to the shell. With few archival drawings, Hill explains that before the BBC left 'it was a matter of sticking tape measures through holes and making deductions from old photographs to get a measure of the building'. When finally exposed, steel beam and concrete pot floors were found to be in good condition structurally if not visually (precluding exposed soffits in the final refurb), except on the south east building, where new infill steel beams and decking were stitched in to about a third of the floor where it had failed. With slab to slab heights determined and window head heights dictating the new suspended ceiling level, it was decided that a 120mm raised floor zone would be adopted everywhere.

Section A-A



Aldwych Quarter ground floor plan



- | | |
|--------------------------------|------------------------------|
| 1 Bush House | 8 Bush House Strand entrance |
| 2 North east wing | 9 St Mary Le Strand Church |
| 3 Melbourne House | 10 Office area |
| 4 South east wing | 11 Basement plant |
| 5 West courtyard | 12 Roof terrace |
| 6 East courtyard | 13 Tenant plant |
| 7 Bush House Kingsway entrance | |



Suspended ceilings run at set heights above this, pulled back from the internal wall face where it conflicts with window head heights.

To raise energy performance ratings the building fabric needed addressing. To avoid planning issues, the few defective Crittall windows were replaced like-for-like and thin-section secondary glazing installed throughout. Internal walls had to be lined with PIR insulation; losses to GIA mitigated by the fact that the strip out revealed a concrete radiant panels heating system set in the walls between the windows, and replaced by rigid insulation panels finished in Gypliner. Core areas in Bush House were expanded and rationalised, with the floor slab broken out to connect down to the basement and up to the roof. Building MHVR plant is now in the basement with tenant plant areas set on the flat roof hidden behind a newly constructed false mansard.

Bush House, though designed with six

lift shafts, only used four, giving JRA the opportunity to improve provision with a fifth lift as well installing a good-sized accessible toilet on each floor. Handsome original Art Deco-esque lobbies on each floor have been brought back to their original state; the only upgrade being the installation of fire rated glass panels into its hardwood timber doors. JRA's intervention here is seen only in the fine shadow gap detail of the gunmetal grey steel lift doors separating the new steel from the veined travertine cladding of the walls. Internal lift cabs are of copper mesh backed glass, alluding to the BBC's charming old copper post boxes in the lobbies on each floor.

JRA's Hill says the other blocks in the complex had far fewer original fixtures and fittings, so the design of reception areas and washrooms was driven by a more conscious aesthetic agenda. Hill explains: 'A recognition of the character of each block drove the design direction but they needed to sit with-

in a family'. So while the palette of materials might have been different in each, there was a real attempt to create a commonality of approach. Hence the Aalto-esque vertical timber slats in Melbourne House are in a sense echoed in the north east wing, only expressed as marble slats of Deco-esque hues. Likewise, its toilets, with vanity units of black Zodiac Corian, link tonally back to this reception wall. The stark white surface finishes of the south east wing washrooms reference the profiled white plaster wall in its reception, drawing you to the lift lobby round a corner. And the cast steel look of the reception desk in Melbourne House is echoed in the dinky sinks of its unisex toilets. Toto sanitary ware throughout further unifies the aesthetic.

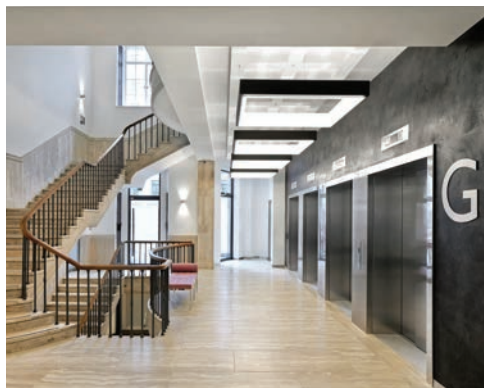
Hill notes that the light fittings might be different, but even they have some commonality, with solid circular luminaires becoming strip halos of similar diameter in different lobbies while hidden perimeter lighting creates a similar visual 'spill' of light over the back walls. Curved circular recessed ceiling lights make a guest appearance too. JRA even used the BBC's famous Gill Sans font to drive the signage strategy for the four buildings. Huge tiles of pale Green Petra Serena stone appear throughout all the lobby areas. 'It became fashionable after it got used in the Apple stores,' explains Hill.


In some big decisions, the hand of the architect was guided, notably in Bush House, where Westminster Council wanted the firm to reinstate the stepped passageway at ground that leads down to the Strand entrance of the main building, where all the glass-fronted retail units had, over time, fallen into disuse. JRA envisages a possible future for coffee shops and cafés for office tenants (these with exposed soffits); which would also re-establish the internal north south connection from Kingsway to the Strand.

Indeed, of all the firm's interventions on the Aldwych quarter, the one of urban 'connectivity' is potentially of most importance. If JRA's big initial idea to turn the stepped route through the blocks' existing car park courtyard into a link from Kingsway to St Mary le Strand church were taken up, a difficult city island site will have been brought back into public use. And the work done by the firm on developing visual connections internally on the micro scale will have been reflected externally on the macro – and that's a fact worth airing. ●

Below left: The south east wing's hidden lift lobby is approached using a white plaster wall that draws you in.
Bottom left The smaller Melbourne House avails itself of nicely detailed unisex toilets.

Below right Art Deco themes in the lobbies are reflected in monochrome washroom finishes.
Bottom right Alvar Aalto is referenced in the lobby of Melbourne House.



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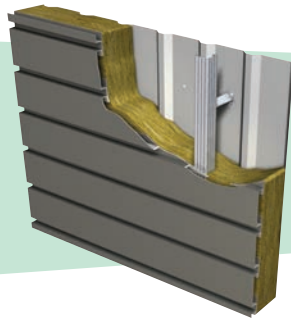
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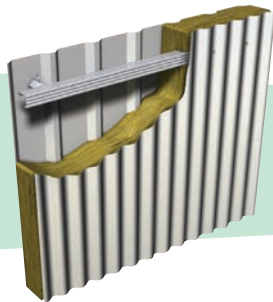


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2: Intelligence



Where people
live

Roger Scruton



Roger Scruton has been appointed to a government panel to ensure design quality in the delivery of 100,000 homes in its Starter Home initiative. Can this philosopher and writer really help give would-be purchasers what they want?

Is this a new way of getting people on the home ownership ladder or just a drop in the ocean?

As I see it, the intention is to encourage people to take a personal interest in new building, and to acquire a capital asset through doing so. It will, of course, be a drop in the ocean if it is not widely taken up. But do we really want all new building to occur because developers, rather than citizens, are the initiators?

Would dropping the Community Infrastructure Levy and Section 106 charges have knock-on effects on infrastructure and public realm?

All legislative interference in the market has knock-on effects. The question is whether these are foreseen and beneficial, or unforeseen and possibly detrimental. A lot depends on public awareness of what is at stake, and the government has a lot of educating still to do. But the levy is an important way of recognising that the cost of building a new house is not just the cost of the house, but the cost of servicing it, and the cost to other people of the change in their neighbourhood.

You, Terry Farrell and Quinlan Terry heading the government's design panel for new homes – are we looking at a large-scale classical renaissance?

I doubt it. But of course, there is considerable evidence that the general public is dissatisfied with modernist architecture and the kind of perfunctory design that ignores the layout of streets and facades. The important task is to create a new consensus, which will overcome the population's hostility to new building. This cannot be done without taking people's preferences into account, and the evidence is that people prefer, if not classicism, at least the kind of visual order of which classicism is an instance.

Can past styles incorporate the new technologies to meet our zero carbon obligations? Does cheaper land mean more for build quality?

Good questions, which I suppose it is the purpose of the design panel to discuss. There is certainly no evidence that older building styles cannot be adapted to the zero-carbon target. Of course people always want to build as cheaply as possible, except when building for themselves. That is why the starter home initiative is a good idea.

A design competition then? How will you fit this in with the writing? Is there a new book coming out?

I don't think of myself as a champion: I assume I am there to make suggestions and to discuss ideas. Writing will continue as normal, and yes, there is a new book coming out – a novel called *The Disappeared* which will be published early next year. It has something to say about housing and architecture, since it is (among other things) about life in a tower-block estate.

HOME FOR LESS

The Prime Minister's Office launched the Starter Home initiative in December 2014. The scheme offers first-time buyers under 40 a 20% discount on new homes, as a push to help people onto the home ownership ladder. It seeks to free up under-used or unviable brownfield land by changing the planning system to exempt developers from Section 106 and Community Infrastructure Levy charges, which should allow the homes built to be sold for less. For a fixed period they will not be allowed to be sold on at market value – ensuring that the financial benefits are passed on to the home buyer. Three of the nation's largest home builders have pledged their support for the new initiative.



Intelligence is officially approved RIBA CPD. Look out for icons throughout the section indicating core curriculum areas.

External
managementDesigning &
building it

Ready, steady, BIM

As 2016 approaches the possibilities for wide uptake of BIM are starting to become a reality

By Adrian Malleeson

How can the design community – and beyond – get real value from BIM implementation? And how is BIM working, now, in practice? The first NBS RIBA BIM panel came together to share insights.

Giving expert views were Michael Goode, director and co-founder of Croft Goode Architects, David Shepherd, BIM manager at HOK; Sarah Davidson, director and head of R&D at international construction consultancy Gleeds; David Miller, owner of David Miller Architects; Adrian Dobson and Anne Dye, the RIBA's director of practice and head of technical research respectively; and me, Adrian Malleeson, head of research at RIBA Enterprises.

People and BIM

With the government's target date of Level 2 BIM for all centrally funded buildings by 2016 looming, there is an increase in BIM adoption across different practices and projects. The panel had diverse experience in using BIM, from small projects in the north of England, to very large projects overseas.

Most simply, BIM is a collaborative working process for the creation and life of a building. Its sophisticated software can bring geometric and other data together in a useful and usable way. These are the BIM tools and

they are a precondition for BIM practice. But, of course, BIM is not software, it's a process.

The question now for many practices is how to get this collaborative working going. But organisations must answer this, not delegate it to post holders such as a BIM manager. The panel described the challenge as three layered: getting people who are willing and able to collaborate, using the tools to build the model, and having the information to meaningfully populate it (and make it useful for the life of a building).

For BIM to become a norm, the community must undergo a number of transformations. Miller noted that we need to move away from 'the tyranny of the BIM manager'. BIM cannot be just a top down compliance requirement but must come from the bottom up too, driven by clear benefit to practices. Return on investment needs to be seen.

Difficulties in getting 'BIM ready' people is countrywide: Goode had found this both in the north and London. So it might seem

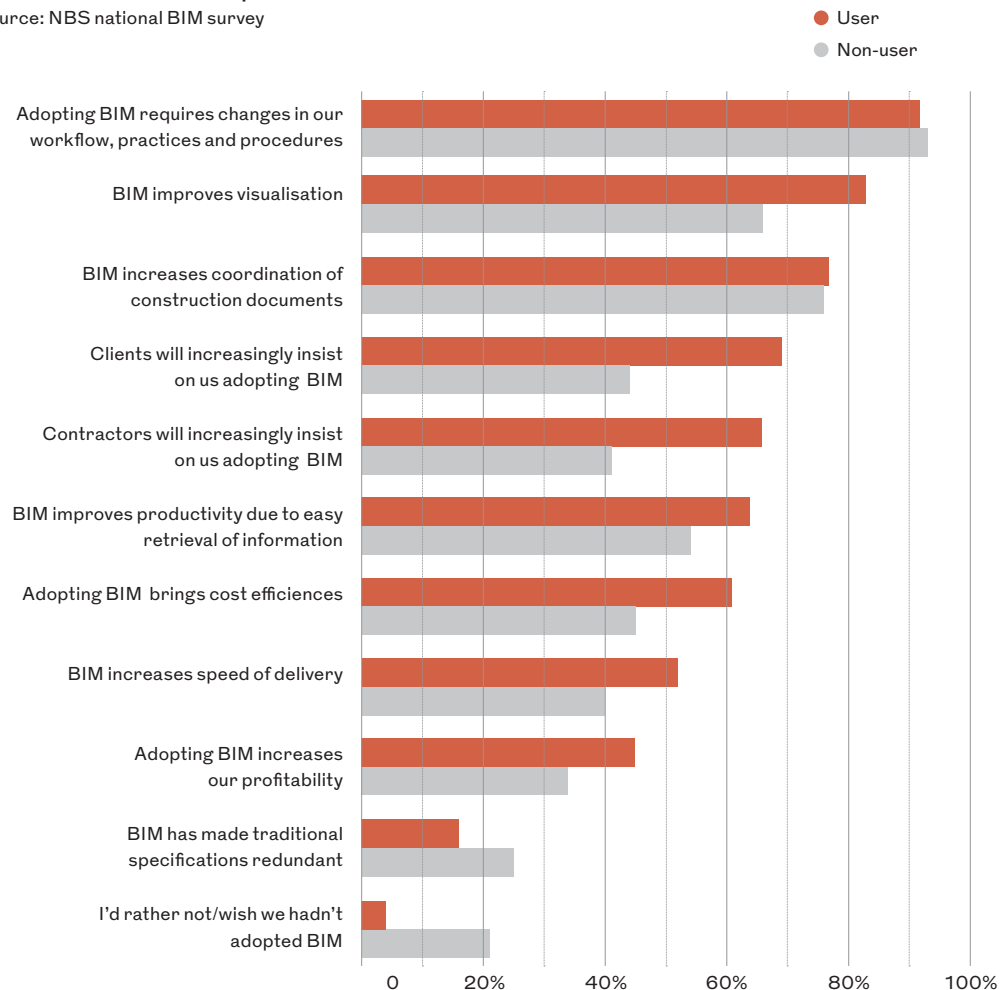
that training people to a high level of BIM competence is risky – they might quickly get poached. Miller put this in the context of broader practice management: 'We have invested heavily in training for our staff in both processes and tools, and as our reputation grows we increasingly find we receive targeted applications from BIM-literate applicants who want to work for us because they know we have fully adopted the system.'

But in any case, training always needs to take place, for one design process or another. The cost of BIM training is in the initial shift, in reskilling, not in the ongoing training cost.

Architecture schools have a place here. Davidson suggested there is a 'lack of dialogue between education and practice about BIM skill requirements'. We need architecture schools to teach BIM tool use, but in a collaborative context. Shepherd noted it's a mistake to think tool training is BIM training: 'Training should focus on collaborative scenarios – once you get that, you get BIM.'

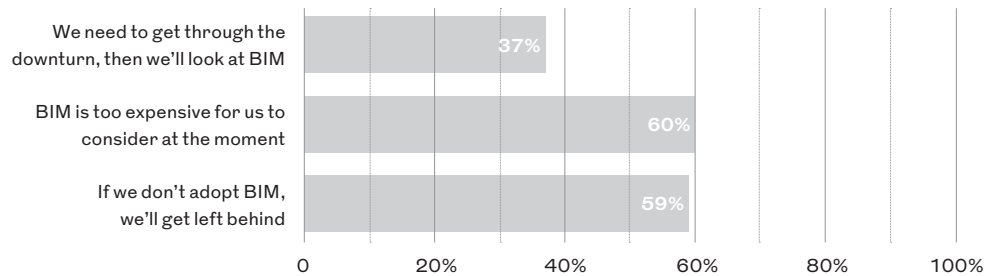
Attitudes towards BIM: A comparison of those who use it and those who don't

Source: NBS national BIM survey



Attitudes of non-users

Source: NBS national BIM survey



A baseline of how to collaborate in 3D needs to be taught, with electives on more specialised areas. But again, this isn't about software but process, tools and upskilling.

This doesn't play down what young professionals can offer. 'Young people amaze me' said one panel member. At Part I or II, fresh from campus, they can get frustrated with BIM processes and tools. But during their placement year they can 'really get it'. These are digital natives, who grew up with dispersed, technology based, collaboration. As the leaders of our digital culture, they may be the ones to release the full potential of BIM.

The future of practice

The panel discussed the changing make up of creative industries. It's not untypical, for example, for an advertising agency to have up to a third of its payroll made up of data analysts and computer coders. Data aggregation, manipulation and interpretation is giving the commercial edge that the 'creative' once provided. We can envisage architecture going the same way – and there will be real opportunities for the data literate here.

This isn't the end of creativity, but rather than individuals working alone we will see innovative buildings created by strongly collaborative teams. These will have their own specialisms and skills and will come together to efficiently create a building that meets the clients' needs and aspirations. If this vision is right, then instead of a few large construction monoliths, diverse vibrant SMEs will work together on projects of all sizes.

What does this mean for tier one contractors? One view is that only the large contractors have the capital and skills to transform the construction supply chain. Alternatively, if Tier 1 contractors are primarily there to package up risk and push it down the supply

chain, then a well-functioning, established collaborative process will make them redundant. As Miller speculated; 'This could be the end of the tier one contractor as we know it. If collaboration can come directly from the supply chain why do you need that layer?'

The panel noted a widespread perception that BIM was not for smaller and medium sized business. The reasons for this included a perceived lack of client demand and concern over the capital cost of getting 'BIM ready'. Yet at times of intense innovative change, it is typically larger, more established companies that struggle to adapt and the smaller companies that are best at innovation and change.

What's holding it back?

The panel identified a number of factors that are impeding BIM adoption, including contractual arrangements which are not always conducive to collaborative working.

BIM is yet to permeate the breadth of work types. Civil and services engineering are behind, and BIM is yet to flow down the whole construction team. Many designers are becoming adept in BIM, as are an increasing number of tier one contractors. But tier two and three contractors still can't often can't use, let alone contribute to, the information in a BIM. The focus on and process for reducing capital costs – including by government – can be a problem. Miller described how the culture of re-tendering at different points of procurement blocks integration which can negate some of the benefits of BIM.

Lowest capital cost buildings rarely give best life time value. Much of the benefit of BIM will come through its use in soft landings, in BIM being the vehicle for improved building maintenance and performance, and in the learnings from Stage 7 coming back to

inform Stage 0 of the next project.

Why, for example, can't the construction industry sell on the lifetime costs of what it produces, like airline manufacturers do? Well, their clients, the airlines, are extremely well educated. We have few such well-informed clients. The government, for instance, often has separate procurement and asset management departments. And designers and contractors don't control the supply chain, as sophisticated manufacturers do.

Government's role

The panel agreed the UK is in a good position. BIM has a clear leader, the government. Davidson noted that this fits into a broader agenda, Government Soft Landings; BIM is just part of a larger picture that will transform how we design and maintain buildings.

The government's 2016 mandate that all centrally funded projects will require level 2 BIM by 2016 gives the industry as a whole the impetus it needs. As Davidson put it; 'if you can make it work for one type of client, why not offer it to others?'

Local authorities however, particularly given the capital costs of BIM, are off to a slower start. But there is real progress. Shepherd observed that public sector take-off is happening. It is patchier with local authorities, but there are successes.

The government has to see through this commitment, though. The panel didn't want to see the mandate dropped as the deadline approaches and difficulties become acute. This risk may be less because the BIM mandate offers demonstrable benefit to contractors and clients as well as the design team. It will be in the client's interest to demand BIM. As Shepherd said, 'The government essentially has a push-pull strategy; clients will ultimately decide the benefits they want.'

Looking ahead

To the panel the question was no longer if but when. There are real issues in BIM adoption, but the overall impression is that the next few years, as we begin to realise the government's BIM requirement, can be exciting for architects and practices. In the words of Goode: 'BIM is putting architects back in the room. The impact we have as the developer of the BIM model can be of huge value to the profession.'

Lynda Thompson, researcher at RIBA Enterprises, facilitated the discussions

Internal
management

Fuel for innovation

The RIBA launches its review of research in practice later this month. We got a sneak preview of the findings

Architects are being urged to leverage the research skills that are already integral to the way they work. 'Research is fuel for innovation, productivity and growth, but arguably the architectural profession has not fully engaged with research knowledge, resources and processes,' says Adrian Dobson, director of practice at the RIBA. 'Connections between academia and practice are quite weak in architecture.'

A series of interview-based case studies provides a snapshot of research activity in practice. It examines the impact of research knowledge on a practice's performance and quality of work, and probes the areas of study in which firms are most interested and engaged.

There were some key findings. Practices value research and consider it intrinsic to their work, with most of it focusing on the requirements of individual building projects: little is separately funded and few practices have access to public funding. Most research is technical or functional – frequent areas of interest are environmental sustainability and energy efficiency, analysis of precedents, and inquiry into materials, products and construction techniques. However, post-occupancy evaluation is also emerging as an important research activity.

Some practices use research in areas such as design theory, sociology and policy to develop their philosophical approach. Any broader programmes tend to focus on developing sector expertise which enhances credibility and provides competitive advantage.

Research ranges from understanding client needs and evaluating project contexts, to assessing the performance characteristics of materials and building components.

Where practices have a portfolio of work focused on a particular sector (or sectors) there was recognition of the value of specialist sector knowledge developed through broader research, not necessarily related to individual building projects, as a way of demonstrating expertise and differentiating themselves in the market place. A specific research knowledge base both informs work in a specific sector and is a useful marketing tool.

While most of this broader practice-based rather than project-orientated research was concentrated on technical and functional aspects, there were examples which were more geared towards design theory, sociological and policy matters. For some practices this was important in enabling them to develop a distinctive philosophy and demonstrate thought leadership.

Larger practices had more compelling examples of formal engagement with academic and research institutions, which went beyond teaching or individual research. These firms showed an appreciation that research could be developed as a business service; part of a more diverse practice offer, which could broaden their market and generate new revenue streams. It is noteworthy that where practices were engaged with academic researchers this tended to be with individuals rather than at an institutional level.

Because the project-focused nature of architectural practice tends to mean that research is mainly undertaken in relation to individual building projects, it is largely

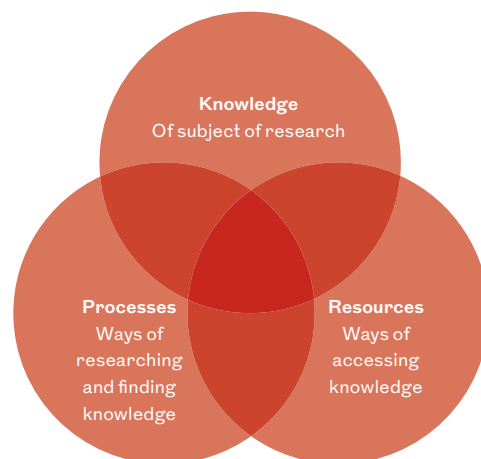
Where practices were engaged with academic researchers this tended to be with individuals rather than at an institutional level

funded through marginal elements of project fees. Overall, links to research organisations and bases of research knowledge were often weak and ad hoc in nature. However, there is strong evidence of an increasing awareness of the potential role for research not just as part of project processes but as a distinct area of practice activity, which can be an additional revenue stream.

Dobson sees the emergence of lessons for both practices and the institute. 'The report shows that the RIBA must work with architects to increase their research skills, and to match-make connections between practices and academia, so that they can benefit more fully from the rich variety of contemporary architectural research,' he says. ●

How Architects Use Research will be launched in January. Find it at architecture.com

How architects understand research



Practising architects can engage with research in a number of ways but the case study interviewees did not draw a clear distinction between these forms:

- Research knowledge: the subject of the research, for example knowledge about sustainability principles and how they can be integrated, knowledge of which materials to use in a specific context.
- Research processes: ways of researching and finding knowledge, for example site review, visit to an archive technology transfer.
- Research resources: ways of accessing knowledge, for example a journal article, the archive itself, blogs or websites.

THE ART OF HEATING



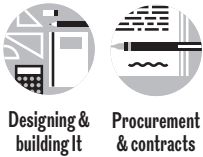
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A change for the better

An appeal over sign-off certificates has reduced architects' exposure

Alistair McGrigor

For the first time since I started writing for RIBA Journal, I am able to follow up an appeal decision on a case I have written about (RIBA J, September 2013). Not only that, it is good news for architects.

In summer 2013, I reported on the case of *Hunt v Optima (Cambridge) Ltd*. Optima (the developer of a block of flats in Peterborough), had engaged Strutt & Parker (S&P) to provide architect's sign-off certificates to purchasers. The flats turned out to have numerous defects, and the purchasers sued Optima and S&P.

The judge decided that not only was S&P liable in 'negligent misstatement', but also that the certificates amounted to collateral warranties. That decision potentially broadened the possibility of users suing architects who provide certificates, even if they had not paid them for producing the certificate.

The Court of Appeal has now taken a different view on architects' liability in these circumstances.

Definitive statements

First and foremost, the architect's certificates need to have been relied on by the purchaser in buying the property. However, none of these purchasers received the cer-

tificates until after completion. Some were aware that certificates were to be provided, and had seen drafts, but the judge made the point that drafts could still be amended before they were signed and issued, so were not definitive statements that the works had been carried out properly.

The judge in the Court of Appeal said: 'Reliance must follow representation and cannot be retrospective. If the representation is the signed certificate it cannot be relied on before it comes into existence. A cause cannot post-date its consequence.'

Regarding whether the certificates were collateral warranties in their own right, the Court of Appeal said that it is not sufficient solely to look at the certificates from the perspective of a lay person. All the purchasers had legal representation, and therefore the document phraseology pointed towards the fact it was intended to be a certificate and not a contractual warranty. If it had been intended to create a warranty, it would have been very easy for the certificate to say so.

Who is owed the duty?

Finally, the Court of Appeal rejected the concept that the architect must have owed a duty to the purchasers to carry out the work of inspection competently. The judge agreed that it must have owed such a duty to the developer but there is nothing to show that the certificate meant it was also owed to the purchasers. Any claim of the purchasers which was based on the certificate must rely on the law of negligent statements, and it is the statements in the certificates which the purchasers could rely on when entering into their contracts. These do not in themselves create a duty of inspection independent of any reliance on the certificate for the purpose of entry into any transaction.

This Court of Appeal judgment should be a big relief to any architect who provides certificates of this nature to purchasers of residential units. Admittedly, purchasers would usually expect to receive something like an NHBC warranty instead of an architect's certificate, but it nonetheless reduces architects' potential exposure.

However, the real lesson of course is that, if you provide certificates saying that a property has been constructed to a satisfactory standard, you should be absolutely sure that it has. ●

Alistair McGrigor is a partner at Nabarro

Reliance must follow representation and cannot be retrospective. If the representation is the signed certificate it cannot be relied on before it comes into existence. A cause cannot post-date its consequence

WAYS WITH PII

Many of you renewing your professional indemnity insurance will be aware that there are two ways in which it is usually held: on either an 'each and every claim' or an 'aggregate' basis. If you hold PI insurance of, say, £5m on an each and every claim basis, any number of claims could be made against it within one year of insurance, each being met by up to £5m.

By contrast, an aggregate basis of £5m would mean there is only a total of £5m to cover all the claims made against your insurance in that one year. It is a case of 'first come first served' if there are competing claims in one insurance year.

Most aggregates insurance policies also allow for automatic reinstatements: once your aggregate pot has been used up, there is an automatic reinstatement of that amount to cover other claims in the year. The benefit of this is that were a claim to arise early in the year that used up all your cover, you would not be left uninsured for any later claims.

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External
management

Wages of fear

Maria Smith glimpses an unfeasable future



Maria Smith

The mob was agitated. Steam rose off the grunting bespectacled men brandishing 3D printed pitchforks. Febrile chants of 'Fee scale or death' floated over the morning air.

On the other side of the world, a young psychologist was casually leafing through a faux-antique architectural journal, and as she skimmed over the glossy unpeopled images she came across an obscure ethnography detailing the history of a broken people of a faraway place from 1950 to the present day – 2050. Immediately seeing the relevance to her thesis on self-loathing, she stuffed the magazine in her bag, slipped out and swished onto the express hover-bus.

Swiftly arriving at her destination, she stepped straight into the middle of an angry mob. Crossfire intersected like a pseudo-derivative parametric diagram. Two near misses later, she had gleaned that the rioters were apoplectic over a procurement website going down. Further enquiries revealed that this IT failure was especially fraught as it meant the mob couldn't download the invitation to tender for the redevelopment of the benighted capital's hover-castle. She could tell from the glasses and pallid skin around her that they were all architects. Ever since the Planning Wars and the Edict of Built Environment roving bands of architects had

become a common sight in the now brutal desolate land.

After a few hours' of indignant milling interspersed with bouts of aestheticised violence, the crowd saw the competition organiser appear. He assured them the I-dei-T was on its way but meanwhile a Powerpoint presentation of the ITT would be projected on the northern rampart. Just as heart rates began to settle, the organiser revealed that this would be the country's first competitive fee tender since fee scales were destroyed in the Atomic Force Field Redundantiser last month. The mob quivered with the uncompromising rage that belies a lack of self-confidence.

A fortnight later, the completed ITTs rolled into the competition office on proton carts and zero-gravity wheelbarrows from all corners of the country. The competition organiser made a giant spreadsheet of all the fee proposals. Each architect had also prepared unprompted concept designs, all equally irrelevant and pungent with the stench of premature renders. Nevertheless, any architect without a planning-ready proposal was immediately disqualified. The bottom 10% of the remaining fee bids were siphoned off under the assumption that they were all too stupid to understand the complexity of the work. The lowest tender in the 11th percentile was telephoned and congratulated on winning the 'job of a generation'.

The hover-castle redevelopment predictably stalled at the technical design stage but the psychologist watched with interest as the legacy of the competitive fee tender infiltrated every aspect of society. She knew architects had once commanded public respect and matching high fees but that at some point they forgot not to undercut each other or to promiscuously give away their ideas, especially at the early stages of a job. So it was with a glum disdain that she watched them back-loading their fees further and further to the point where a client could demand as many feasibilities as it fancied for almost nothing.

The psychologist looked at the records of year books and degree show reviews and was shocked to learn of the decades of work the students undertook. She surmised that architecture school was essentially a drawn out initiation into withstanding mental flogging. Furthermore, she observed them in their studios and it was clear that they all had obsessive, unviable attachment to the cult of concept design, worshipping the

The rioters were apoplectic over a procurement website going down. This IT failure was especially fraught as it meant the mob couldn't download the invitation to tender

Ego-eyed Psychlops of Singular Ideas. Furthermore, on successfully placing herself onto the judging panel for a competitive tender, she observed that the backloading of fees had grown to such an extent that clients were now paying an enormous premium if their project proceeded past the nigh-on free concept stages. After immersing herself for four years, she wrote this all up in a paper for an obscure academic journal.

Years later, an architecture MA student stumbled on the article and submitted the most salient paragraph to a painfully well-read design blog. It read: 'This isn't a report on architectural fees, it's a report on self-loathing. The old adage: "a gaggle of geese, a school of fish, a jealousy of architects" fails to recognise that architects don't merely hate each other, they hate themselves. This deep, ingrained self-loathing is facilitated by a myth of genius, nurtured at architecture schools and propagated by practice. Architects are thus not incentivised to remedy their operations with sensible regard to the market. The only hope might be that the commissioners of architecture act in their own self-interest and neither demand nor accept the mad scribbles of creatively exhausted conceptophiles.'

Maria Smith is a director at Studio Weave
See more of her columns on ribaj.com

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SIG Roof Lines



Austria's Alpine gem

A CorTen clad chapel strikes an unexpected note deep in the wild Tyrol, but its garnet-like shape gives clues to why it is there

ENRICO CANO

Poised on a rock spur beside a still lake on a mountain plateau 2km above the Ziller valley in the heart of the Austrian Tyrol, the Garnet Chapel commands a spectacular view in one of Europe's harshest climates.

The new 700m³ geometric building, designed by Swiss architect Mario Botta, is highly sculptural, its reddish brown CorTen steel-clad facade taking the form of a crystal.

The idea to build the chapel in the shape of a garnet crystal came from the client, Josef Brindlinger, whose great-grandfather found several garnets of exceptional purity at the location. The form of a cut garnet features 12 rhomboid surfaces, 14 corners and 24 edges.

'The chapel was commissioned to enhance the top of the mountain,' says Botta. 'It would complement the arrival nearby of a cableway, chalets, a restaurant and other tourist facilities, and remember the local saint, Blessed Engelbert Kolland.'

The facade weighs 17 tons and comprises 12 rhombuses made of 120mm-thick plywood panels clad with 300mm-wide CorTen steel sheets that rest on a total 2,280 threaded rods anchored into the supporting structure.

Behind the CorTen, the walls and roof have a layer of company FDT's Rhepanol fk polyisobutylene-based synthetic roof waterproofing membrane. The highly durable product, specified by the project's partner architect, Besto of Austria, is able

to handle the region's strongly fluctuating temperatures, thunderstorms and very strong winds.

Supplied in the UK by SIG Design and Technology, Rhepanol fk has an integrated synthetic fleece and a prefabricated self-sealing edge, making it very stable, even in strong winds. It is UV resistant and remains flexible at temperatures as low as -60°C.

'Due to the harsh conditions, we had to have a waterproof surface within a week of assembling the walls,' said Besto director Bernhard Stoehr. 'Rhepanol meant the water proof surface could be glued ahead of fitting.'

The synthetic membrane contains no toxic plasticisers or halogen fire-proofing agents. It is also fully recyclable.

The builders had just three months to erect the chapel, between the last of the

snow in mid-June and new snowfall in September, so the facades were precision engineered off-site and installed in a strict sequence to achieve structural stability once all 12 elements were held together in tension.

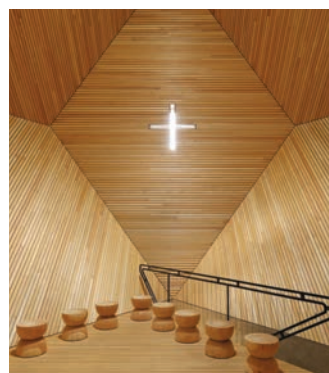
Local specialist roofing contractor Robert Stadlmeyer carried out waterproofing works on the plywood panels, which were laid flat on the ground. To prevent wind uplift, the membranes were bonded in strips to the supporting timber structure.

The severe weather meant full adhesion sometimes took a day or two, so the Gripfix system was used to provide mechanical fastening – similar in nature to velcro – ensuring elements were ready for installation.

After waterproofing, the threaded rods needed to support the CorTen Steel cladding were anchored into half the panels on the ground. To achieve a fast, accurate and permanent waterproof flashing against these rods, the roofers used FDT's lightning conductor sleeve with Rhepanol collar.

'Because we had to screw into the surface 2,280 times to attach the cladding to the rods, we needed a system that ensured every point was safely waterproofed,' said Stoehr.

Inside the finished chapel, natural daylight floods the larch-clad space through a central opening and circles the room as the sun rises and sets. It's a sight to behold for architects and religious pilgrims alike. ●



The 120mm thick plywood structural panels, while covered with Rhepanol and CorTen externally, are lined with larch internally.



MURAT PULAT

Keeping clear of growing pains

As green roofs move into the mainstream, Simon Blackham of SIG Design and Technology describes the secrets of a successful specification

Once something of an exotic novelty, green roofs are heading towards the mainstream as their thermal and acoustic qualities as well as their bio-diversity benefits become more widely understood.

The mass of a green roof increases its thermal performance by acting as an extra insulant. It can also help with rainwater attenuation by slowing the flow of water off roofs in the case of very heavy rain, at the same time dampening the sound of a downfall, something especially useful in education buildings. Green roofs also work well in combination with solar PV as their evapo-perspiration helps to stop the panels from exceeding the optimum performance temperature of 25°C. Biodiverse roofs – also known as brown roofs – can bring additional advantages in the planning process.

Along with aesthetic appeal, these factors have helped increase the popularity of green roofs as clients look to do something more interesting than the instant greening offered by sedum. Architects however can be apprehensive about specifying them. But don't be scared. No two green roofs are the same but specification is straightforward if you follow a few basic rules.

Make the decision early

Green roofs should be included in the original design concept for the building so there can be early engagement with the supplier and manufacturer. This is key to cutting costs. Also, if there is just one supplier for the whole

job – from insulation to membrane to green roof – it is covered by a single guarantee which keeps liability simple for the client.

Choose the right roof for your purpose

There are four main types (see right) of roof to suit different aesthetic and biodiversity priorities, which each have their own weight and cost implications. These range from the lightweight Extensive Modular type for an instant green effect through to the far heavier Intensive option. This is suitable for more ambitious planting and the only option that requires regular irrigation and maintenance.

Make sure that whichever option you choose, the roof meets both FLL penetration standards – for rhizome as well as root.

On top of a warm roof construction, a typical green roof build-up has three layers. A drainage/protection layer generally consists of a laminated, composite water reservoir core with a moisture-retentive protective fleece on the underside and a geotextile filter mat on the upper side. Above this is the factory blended growing medium layer with a plant layer on top. Plants can be grown by seed, plug planted or supplied as a pre-grown blanket.

Accommodate the weight

The weight of a green roof varies considerably – from around 64.5 kg/m² to 200 kg/m² depending on the type. Once a choice has been made, the structural engineer should speak to the supplier to get the figures for both dry weight (parched) and maximum saturation in

Above FOA's 2007 Meydan Umraniye retail complex in Istanbul used green roofs as a key element of its design.

order to provide sufficient structural support for the loading in the design. The height of the green roof system will affect the height of the upstand needed. It's much easier to get this right in the beginning than correct it later.

Don't forget the pitch

A common mistake is not taking account of the battens needed for a pitched green roof to prevent the green roof layer slipping off. This detailing needs to be thought about along with the roof design.

Get the phasing right

The rest of the roof should be finished before work starts on the green roof, to avoid other trades walking on it and damaging it. Make sure there are walkways for maintenance – sedum in particular doesn't like being walked on. Once the green roof is on, you're less likely to have a problem with the actual roof than with a more traditional, exposed roof because the waterproofing membrane is tucked away and protected, so less likely to suffer surface damage and UV degradation.

Use the best installers

Green roofs should only be installed by qualified contractors. SIG recommends its DATAC (Design and Technology Accredited Contractor) network of expert installers. ●

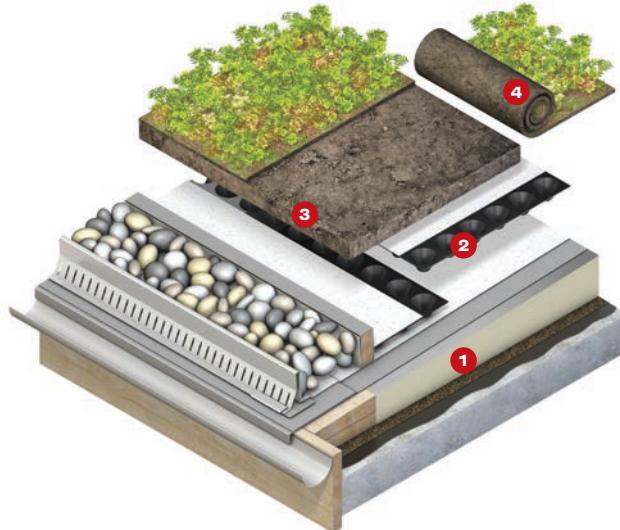
Extensive Modular

- 1 Shallow tray
- 2 Growing medium
- 3 Maintenance-free plants



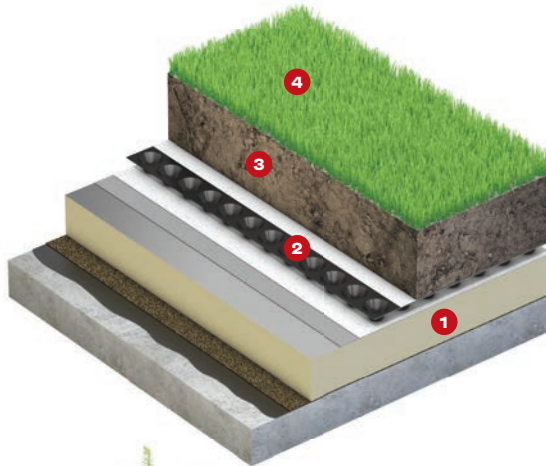
Extensive Built-up

- 1 Warm roof construction
- 2 Drainage/protection layer
- 3 Growing medium layer
- 4 Plant layer



Intensive

- 1 Warm roof construction
- 2 Drainage protection layer
- 3 Greater depth of growing medium
- 4 Plant layer may contain trees and shrubs



Biodiverse

- 1 Warm roof construction
- 2 Drainage protection layer
- 3 Growing medium layer
- 4 Low maintenance plants, may include native species



GREEN ROOF TYPES

EXTENSIVE (Modular)

Build-up height: 80-90mm

Weight: 64.5kg/m²

Suitable for smaller projects requiring instant greening. Supplied with a pre-grown sedum layer fully established in shallow trays that clip together. The growing medium supports hardy succulents, herbs and grasses with limited growth that are stress-tolerant and require no maintenance.

EXTENSIVE (Built-up)

Build-up height: 70-120mm

Weight: 80-125kg/m²

More economic for larger areas than the modular type. These are supplied in separate elements such as drainage layer, growing medium and plant layer which are installed on site. Planting can be pre-grown, plug-planted or seeded, in which case it can take two months with irrigation to get established.

INTENSIVE

Build-up height: 150-1500mm

Weight: 200 kg/m²

This roof garden option is far heavier and therefore needs more structural support. It also requires irrigation but is capable of supporting lawns, shrubs and even some small trees. Usually this is specified for structures that are built into a hillside and have a particular desire to blend into the landscape.

BIODIVERSE

Build-up height: 70-200mm

Weight: 90-225 kg/m²

Popular for recreating or enhancing a pre-development habitat in order to encourage a particular plant or wildlife such as bats, bees, butterflies and birds. May include plug-planted sedums and hardy native species according to the habitat being created. Low maintenance.

8 steps to
the perfect
roof

1

The Right
Products

2

Design
Expertise

3

Meet the
Regulations

4

Confidence
in Supply

5

Experienced
Contractors

6

Monitored
Installation

7

Full
Guarantees

8

Planned
Maintenance

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Cool customer

A cold-applied waterproofing system steals the show at the Vue cinema in Doncaster



When a **Vue Cinema** on the outskirts of Doncaster needed a section of flat asphalt roof refurbished as part of extension and maintenance works, a zero odour solution was required that would allow the building to stay open to the public throughout installation.

The 750m² roof, located in the centre of the cinema above a stair and lift core and projection rooms, was covered with a lot of mounted plant, equipment and trunking, making it too disruptive and noisy to take up and replace the existing asphalt.

A liquid cold-applied waterproofing product was considered ideal to avoid the need for complex edge detailing associated with single ply or bitumen products around the plant.

Fumes emitted by solvents in traditional cold-applied liquid waterproofing posed a health and safety risk because of the potential to enter the cinema through air conditioning intakes on the roof and stay in the air for up to four days.

With these concerns in mind, specification manager Cameron MacAndrew, from roof design and supply business SIG Design and Technology, chose to recommend Hydrostop EU AH-25, a wet-on-wet cold applied liquid waterproofing

system that contains no solvents or isocyanates, with a very low VOC content.

'Hydrostop AH-25 emits no fumes and no odour, which meant the cinema could continue business as usual for the week,' said MacAndrew. 'Because it goes down wet on wet in a single pass install, it is a lot faster than most other cold applied systems that require base coats to dry before installers return to apply several top coats.'

For the installation process the roof was first cleaned. Then a base coat of AH-25 was applied, into which a 110 gsm layer of



Above The Vue Doncaster – with roof-mounted plant hidden behind the parapet of its facade.

Left The refurbished roof of the Doncaster Vue – all the interfaces competently dealt with using Hydrostop EU AH-25.

polyester reinforcing fleece was embedded, whereupon it was immediately saturated with a second coat of liquid.

AH-25 is totally impervious to standing water, unlike bitumen roofing products, and uses moisture in the atmosphere to fuel the curing process, whereas other cold applied liquid waterproofing requires a catalyst to be mixed in, complicating the application.

The product comes with 25-year guarantee, which is better than competing systems' maximum 20-year guarantee, for essentially the same amount of money,' said MacAndrew. 'And installers like it because it saves having to wear additional PPE or a use a respirator, as required when working with other liquid waterproofing.' ●

SPEEDY DOES IT

The refurbishment and insulation of a 1970s social housing estate at Greenock in Inverclyde, Scotland involved the upgrade of 27 small 4.5m by 6m flat roofs for housing association Inverclyde Homes.

Due to concerns about potential disturbance to residents from fumes, noise and leaving large amounts of scaffolding erected around the roofs for an extended time, the cold-applied liquid Hydrostop AH-25 was specified.

'Using a conventional liquid waterproofing system, a primer is installed on the first day, a base coat the next day, and then a top coat on day three, but AH-25's wet-on-wet application reduced the installation time for each roof and allowed the scaffolding to be dismantled a lot faster,' said Chris Page, product manager for premium liquids and felts at SIG Roofing. 'The product is odour-free and the contractor Horsburgh Construction was able to install it using silent techniques with no power tools required to complete the works.'



TAKE THE RISK OUT OF ROOF DESIGN

8 STEPS TO THE PERFECT ROOF

1



The Right Products

Don't rely on a single manufacturer who will recommend their product for any application. Get independent support from an experienced supplier: make an informed choice.

5



Experienced Contractors

An experienced, accredited contractor knows the products and will integrate the roof system with your whole building so it performs well and looks great too.

2



Design Expertise

Don't risk uncoordinated design input from several manufacturers. Have your roof designed, specified and co-ordinated from the deck up by a single PI insured designer.

6



Monitored Installation

In many projects, buildability issues will crop up on site. Ensure your supplier will monitor the installation and provide quality field support for your contractors.

3



Meet the Regulations

Ensure you meet all the Statutory Requirements even if they change. Use an independent, expert design service and get full, free technical support until completion.

7



Full Guarantees

Don't fall between suppliers who may dispute responsibility. Have the roof designed, installed and guaranteed from the deck up by a single entity you can rely upon.

4



Confidence in Supply

A reliable supply chain is essential for profitability and performance. Choose a proven materials supplier with local availability, shorter lead times and high stock levels.

8



Planned Maintenance

A perfect roof is designed for appropriate, safe and efficient maintenance. A whole roof service, plus maintenance plan, will protect you and give your client confidence.

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3: Culture

Overseas is the new local

The best way to work overseas is to make it local



Hugh Pearman Editor

You hear a lot, all the time, about British architects making headway overseas – especially the fast-developing markets of China, India and Brazil. We have some evidence: every month we send on average 4,387 copies of the RIBA Journal (nearly 16 per cent of the total circulation) to members based internationally rather than in the UK. Meanwhile the non-UK visitors to ribaj.com are a larger percentage still, at over 37%, and the analytics show that they hail from 136 nations. Who'd have thought that (on the day I checked) Norway would rank third as a source of our online visitor numbers, after the UK and the USA and ahead of Ireland?

All this means that your RIBA Journal is snapping at the heels of other magazines claiming international reach, and this partly explains why there is more overseas material in the magazine than you might imagine: projects and reports from 27 other countries during 2014, for instance, and more online. But in all the excitement and nervousness about new markets, let's not forget an old pairing: the UK and US. Which brings me to the success story known as Grimshaw.

In this issue you'll find a key transport in-

Grimshaw has done something very different in New York, more so than any other well-known UK practice: it has gone native

terchange in Manhattan's financial district by Grimshaw, with Arup, that has taken 10 years to bring to completion. Part of the reinvigoration of the district following 9/11, it's a classic engineer-architect hook-up in which something inordinately complex is finally fixed and expressed in civic terms through a very simple architectural device: the oculus. Reviewing it is our latest contributor, Manhattan-based Ian Volner, on page 14.

There is more behind this. Grimshaw has done something very different in New York, more so than any other well-known UK practice: it has gone native. It is embedded in the city in numbers, and has been for years. You could argue that these days Grimshaw is as much an American practice as it is a UK one (and let's not forget its other offices in Melbourne, Sydney and Doha). It has been very systematically done: America with its federal system is a tough nut for British companies of any kind to crack, and there is a great deal of difference in being there on the ground all the time rather than parachuting in the occasional competition-winning design. You might say that the Fulton Center is a classic piece of Grimshaw English high-tech: however, look at other work it has done in the States, such as its Via Verde ecological social housing project in the Bronx, and you see a practice in the process of evolution to suit local circumstances and opportunities.

As well as practices, the RIBA is also busy on the international front. It has recently launched a more proactive strategy for engaging with those facing need or conflict which includes a two day summit, Designing City Resilience. This matters to all of us.

And finally: we might sometimes pretend indifference, but winning awards is important, so you should all enter your best projects for this year's RIBA Awards: deadline is February 5, details at architecture.com. We do it too, and have won Magazine of the Year in the non-weekly category in the International Building Press National Journalism Awards. ●

George Cannon is determined – following a visionary sighting of the great, dying architect WF Bentley in his near-complete Westminster Cathedral – to be great at his vocation on his own account

Hugh Pearman on fictional architects
<http://bit.ly/1wjPK5o>

There were several fascist camps and outlying individuals with various stylistic leanings who vied for supremacy, or at least attention

Adam Nathaniel Furman's seven fascist masterpieces
<http://bit.ly/1z5hknj>

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Will Wiles goes to the movies



Will Wiles

Aliens invade south London. The manager of a defrauded pension fund plots to rob the man responsible. An elite police unit strikes against the headquarters of a violent drugs gang in a teeming modern city; and much the same thing happens again, but in a far-future dystopia. Monster movie; heist comedy; Indonesian martial arts; sci-fi action derived from a comic strip. Attack the Block, Tower Heist, The Raid and Dredd: four different films released within 18 months of each other, sharing a crucial characteristic. All involve assaults on tower blocks.

Multiplex serendipity of this kind is always interesting – witness the Volcano Summer of 1997, or 2013's films based on terrorists taking over the White House. But those were Hollywood talking to itself, and could perhaps be traced to a common contaminant in water cooler refills. The quadruple tower trouble bill of 2011-2012 involved film industries on three continents. Was something else going on?

At the heart of The Raid and Dredd is an idea now so familiar that it's practically quaint: the high-rise block as somehow impervious to policing, and therefore almost destined to become an impregnable hive of scum and villainy. This idea arose as the modernist mass-housing dream began to wilt in the 1960s. It was a form of architectural determinism that was the mirror of the modernists' ideal of man as a perfectible Modulator ready to be elevated by new surroundings. Starting with Jane Jacobs's defence of the traditional neighbourhood and climaxing with

The architect, sad to say, mostly appears on the side of the bad guys

Alice Coleman's 1985 report Utopia on Trial, the tower block was blamed for crime, almost to the exclusion of social or economic factors.

In both films, heavily armed drugs gangs have colonised decaying towers – on a megastructural scale in Dredd – rendering them off-limits to the forces of law and order, who can only triumph in the form of ultraviolent one-man armies. But neither block has simply reverted to dog-eat-dog chaos. More subversively they have their own inner organisation, reflective of the outer social order: kingpins in the penthouse, descending layers of henchmen, mooks and grunts beneath. They even have a perverse community spirit as they unite to repel their invaders. But the idea that policemen struggle when they have to go up in the lift affects Park Avenue as well, as seen in Tower Heist. Amoral Wall Street fraudster Alan Alda occupies the penthouse of a security-infested condominium building, apparently untouchable. Building manager Ben Stiller, unable to recover his employees' looted pensions by legal means, plans an elaborate robbery to make things right. His superior knowledge of the building's layout and its inner rhythms gives him the advantage over Alda and the FBI. Here may be the clue as to why the tower is so associated with the fortress – it's to do with the rigours of its internal circulation: the lift shaft is the drawbridge of our time. The heroic protagonists of the tower-assault mini-genre could be taken as staging a violent dérive against the proscribed patterns of the architect, who, sad to say, mostly appears on the side of the bad guys. Hence the preoccupation with shafts and ducts, and occasional explosive remodelling through solid walls.

Which makes Attack the Block a pleasing exception to the rule: it's the only one of the four told from the point of view of a tower's defenders, be hooded south London youths, who find toothy aliens falling from above to menace their streets in the sky. Again, superior knowledge of the terrain carries the day, as they band together with other residents they have hitherto themselves menaced. It's precisely this kind of unexpected use of the layout that so worried Coleman and her ilk. And Attack the Block has unexpected poignancy, as it was shot in part on the doomed Heygate Estate in Elephant and Castle. Regenerators have achieved what the aliens could not. ●

Will Wiles is a journalist and author. Read him here every other month and try his look at weird space: ribaj.com/culture/crazy-on-the-inside

BRUTAL TRUTH

Ballard had his own explanation for how the tower block became the modern analogue of the fortress. Following in the footsteps of French theorist Paul Virilio, he saw the germ of post-war building in defences erected by the Nazis along the Atlantic coast, 'concrete tombs whose dark ghosts haunted the brutalist architecture so popular in Britain in the 1950s'. He suspected that catastrophe was etched into their form: 'I sometimes think that social catastrophe was what the dirt-poor residents secretly longed for.'

Back to excellence

Welcome to the Schueco Excellence Awards for Design & Innovation 2015 in association with the RIBA Journal

Following their successful launch in 2014 the Schueco Excellence Awards are back.

The awards recognise and celebrate the architects, fabricators and subcontractors that Schueco has collaborated with in developing and realising Schueco facades, window and door systems for successful buildings.

Commenting on last year's awards, Mike Lane, managing director of Schueco UK Ltd, said: 'I am delighted that the Schueco Excellence Awards are now in their second year. The competition is providing the UK's architects and Schueco's network of fabricator-partners with the wider national recognition that their talent and hard work deserve.'

Award winners and commended entries will be published in a special RIBA Journal awards supplement in July 2015.

Last year saw a hugely varied field of buildings entering the competition, with the best demonstrating how dedicated input and collaboration from design team to specialist subcontractor through the supply chain to Schueco show the transformational power of the cladding and window system.

Enter now! Deadline for entries: 9 April 2015

- Have you developed a truly innovative facade?
- Have you used Schueco as an essential part of your Passivhaus strategy?
- Have you adapted a glazing unit to make a seamless detail with a more traditional design?
- Do you just want to show off your beautiful envelope?

From small projects to housing to commercial buildings we want to hear from you.

The categories

- Education building
- Health building
- Commercial building
- Small project
- Individual house
- Residential development
- Sustainability
- Specialist contractor
- Schueco special merit award

Below Last year's winners: Duggan Morris' *Ortus* (left) won the health category and took the Schueco special award while Manchester School of Art by FCB Studios triumphed in education.



JUDGING

The judges, chaired by RIBA Journal editor Hugh Pearman, will be looking for creativity, innovation and collaboration using Schueco systems to deliver excellent buildings. Judges include: Paul Monaghan, director AHMM; Mary Duggan, director, Duggan Morris Architects; and Bob Allies, partner, Allies and Morrison. Winners will be announced at the Schueco Excellence Awards lunch in June 2015 and published in a special RIBA Journal awards supplement in the July 2015 issue.

ENTRY ELIGIBILITY

Who can enter?

UK-based ARB registered architects and fabricators

What can be entered?

- Buildings completed between 1 January 2013 and 1 January 2015
- Buildings using Schueco products or systems
- Buildings may be submitted in more than one category

ENTRY REQUIREMENTS

Entries must be submitted by email to schuecoawards@ribajournal.com by midday, 9 April 2015

All entries must be submitted in English and include:

- Contact details
- A maximum of 600 words of explanatory text
- A minimum of four and maximum of 10 photographs of the building
- A clearly labelled site plan
- Clearly labelled key working details
- Clearly labelled key sections

The information submitted in your entry may be used on the Schueco and RIBA J website and in the RIBA Journal. By entering the awards you acknowledge that Schueco, RIBA Journal and their partners have the right to reproduce any photographs, drawings and other material supplied in whole or in part in conjunction with the awards, without payment of copyright.

JUDGING

- The jury's decision is final
- The jury reserves the right to re-categorise any entry or reject those that do not comply with the entry requirements
- No correspondence will be entered into by the organisers or the judges regarding feedback on entries
- Judges will be asked to declare an interest and withdraw from the process if a conflict of interest arises

Judging criteria

Judges will look for entries that demonstrate how creativity, innovation and collaboration using Schueco systems have delivered exemplar design and product solutions to achieve original concepts.

Winning and shortlisted entries

Shortlisted entrants will be notified in writing. Representatives of shortlisted buildings will be invited to attend the awards lunch which will take place in June 2015. Winners will be announced at a special awards lunch in central London in June 2015.

Time to step up a gear

Procurement is centre stage this year. With your help we can make our voice heard



Stephen Hodder

Looking back at last year's Stirling Prize, one of the striking things about the finalists was that five of the six buildings were commissioned by public bodies. At a time when the public sector faces incredible pressure on resources, it was refreshing to see the recognition that as a society we see good design as something that is worth investing in.

It also made me reflect on one of the main frustrations I hear from members – the UK's approach to public procurement. Let's start with the facts: the UK's system is expensive, unwieldy and bureaucratic. But from my perspective, the biggest frustration is that design all too often plays second fiddle to cost when it comes to awarding the contract.

Addressing the shortcomings in the procurement system is a continuing priority for the RIBA. In 2012 we published 'Building Ladders of Opportunity', our analysis of the problems and a call for action. The next stage in our work will be later this year when we publish a guide for local authorities on how to procure architectural services. It will set our key priorities and – we hope – help ensure that procurement processes start to ask more

Architects
need to become
procurement
experts if they want
to win contracts

of the right questions. It should also help local authorities put the right procedures in place to ensure that practices of all sizes can bid on a level playing field and bidders are assessed solely on the quality of their proposals.

We've chosen to do this now because we've reached a critical time in the debate about the UK's procurement system. At the end of 2015, new EU Procurement Directives will come into force across the UK. Combined with the UK government's reforms, there is a real opportunity to tackle the tick-box culture and bureaucratic mess that all too often characterises procurement process in this country. It can also help address the constant downward pressure on fees. On a recent visit to Northern Ireland I was struck by the practice there of specifying minimum fees for architectural services on some procurements. Stronger rules on accepting bids that fall well below other quotes will also come into effect.

And with even more stringent budget cuts for the public sector likely to follow the general election later this year, the stakes for architects and our future public buildings couldn't be higher – we need to keep making the case that a building that is well designed is also the best value for money.

But the onus is now on us as a profession to drive reform. The Cabinet Office's mystery shopper scheme is one avenue we should look at more closely. It allows you to submit anonymous complaints about procurement processes. So whether it's high turnover requirements, weighting for past experience or complex PQQs, we need to start being more vocal and highlighting our concerns directly.

Importantly, we also need to recognise good practice when we see it. Architects need to become procurement experts if they want to win contracts – but we must recognise that many of the bodies looking to hire an architect will have little or no past experience of working with architects.

We also need to be realistic. Things aren't going to change overnight, and they won't change at all unless as a profession we get better at highlighting the good, the bad and the ugly that we encounter when bidding for work. This means speaking to your local councillors and members of parliament, raising these concerns with your local RIBA representatives and letting RIBA staff know what is going on in your area so they can feed it into their discussions with government. ●

@hodderPRIBA

RIBA AWARDS 2015

Submit your entry for the 2015 RIBA Awards. Projects of all sizes and budgets across UK regions and nations are eligible for entry. Deadline for all UK entries, excluding Scotland, is midnight on Friday 6 February 2015. architecture.com/ribawards2015

Last year's regional award winners: <http://bit.ly/1qA0r4I>

The uncategorisable awkward-squad architect ducked the limelight for a while. Now he's back, and means business

Words: Hugh Pearman Portrait: Wilde Fry

Will Alsop rebooted

'We spend a lot of time NOT doing projects,' says Will Alsop. There speaks the former assistant to Cedric Price, the man who instilled in his staff the responsibility of the architect to consider things beyond building, and obsessing over buildings, and to regard happenstance as an alternative planning discipline. Oh, and a proper respect for the good picnic and the hell-for-leather 24-hour benders of Price's mysterious Hot Stuff Club. Though as it happens, Alsop, with his offices in London and Chongqing and a combined staff of around 20, has a nice clutch of projects on the go at present, ranging from a vast country estate in Spain via a Battersea residential tower to a wall clock for Alessi. Compared to Price, his design productivity rate is prodigious.

We should all celebrate the fact that the

UK architecture system could produce both Price and Alsop, from the AA in the 1950s and 1960s respectively, and wonder if – in the world of Pre-Qualification Questionnaires – it still can. Alsop is a man with the sensibility and demeanour of an artist who is very sure of his own ideas even if the world at large might not always be ready for them: witness how he doughtily defended his experimental, eye-wateringly costly Lottery-funded contemporary-art building in West Bromwich, 'The Public', after he had quit the job at design stage, it had subsequently failed as an institution, closed, and been converted into a sixth form college.

Luckily, a certain number of those ideas of his actually get built in a form close to their original concept: Alsop Lyall and Störmer's





1994 'Grand Bleu' Hotel du Department in Marseilles, say, or his Ontario College of Art and Design in Toronto, your classic Alsop stilt-building, still fresh and startling after 10 years. One of my favourites remains Alsop and Lyall's little oval-tube Cardiff Bay Visitor Centre, completed in 1990, designed to last five years, which ended up being refurbished, moved, and eventually lasted for 20.

There's his mischievous side: the man who can produce a masterplan in which the buildings are indicated by teddy bears or Marge Simpson's beehive, or who can draw inspiration from such unlikely sources as a child's plastic spaceship toy. The man who designed a kinetic new Institute of Contemporary Arts that would have shuttled from the north to south banks of the Thames by using the redundant piers of a former railway bridge at Blackfriars. The man who, on winning the 2000 Stirling Prize for Peckham Library, uttered a four-letter word on (nearly) live television in his acceptance speech, which compared the positive attitude of the borough of Southwark to what he saw as the negative attitude of the Royal Borough of Kensington and Chelsea. Alsop has been on the Stirling shortlist three other times, is a Royal Academician and an OBE. For an ostensible maverick, he gets a lot of establishment support.

Then there is the man who gets through partners (John Lyall and Jan Stormer) and colleagues at quite a rate, in recent years seeking financial shelter in large corporate organisations – Archial, SMC, RMJM – which were not at first or last glance attuned to his way of working, nor he theirs. Considering that he knocks about with artists such as Bruce McLean rather than project managers and accountants, the idea of Will at the boardroom table is intriguing.

And then he went very quiet, as a lot of architects did in the desperate years following the financial crash of 2008. He also made a conscious decision, he says, to retreat a little from the public eye after all the publicity that used to follow his movements. But now, aged 67, he's back, operating for the last couple of years as aLL Design. I've been invited to his Doodle Bar in Battersea, part of a former dairy complex now renamed Testbed which includes the Alsop studio and a number of other businesses including Vivienne Westwood and a gin distillery. The idea is to find out what he's up to – apart from Test-



This is the man who designed a kinetic new Institute of Contemporary Arts that would have shuttled from the north to south banks of the Thames by using the redundant piers of a former railway bridge at Blackfriars

bed itself, in which he has a financial stake. He seems unchanged – not least in the way that, as he talks on quietly about his various projects, it's hard to tell which are real in the sense that they have a chance of being built, as opposed to those equally real projects that exist quite satisfactorily, conceived or actually designed, in his head.

Like Price, too, he is capable of producing concepts that are influential over a long period and feed into the ideas of others. Would the present-day government interest in what it calls the 'Northern Powerhouse' of connected trans-Pennine cities possibly have anything to do with Alsop's remarkably similar 'Supercity' project of 2004 with its book and TV documentary? I think it might, though typically Alsop's earlier version was considerably more ambitious, spanning the whole country from Liverpool to Hull and in-

cluding the idea of a town/country mix that had something in common with Frank Lloyd Wright's Broadacre City.

As we sit over our mid-morning coffees, the thought of lunch unspoken between us, Will flicks through an assortment of his current projects on his phone. A big, completed cruise terminal in Shanghai. That spiky office/residential tower at Battersea Heliport, which bestraddles an existing structure much as his OCAD building in Toronto does, and has received planning approval. A gallimaufry of projects and masterplans in London, the north of England, Canada and China which are for the moment off-the-record: knowing Alsop, many will quietly vanish without trace but some will make it through.

Most typically Alsopian, perhaps, is a project that comes in the form of a book that is part historical document, part travel guide, part cookbook, part diary and sketchbook and part novel: 'Las Heras: an imagined future', subtitled 'Stories of an emerging world'. This is perfect: a wealthy client owns a 300ha country estate near Girona in north-east Spain, and between them he and Alsop have concocted the idea of making it into a kind of Rural Studio for students and others to come and visit, while living off the products of the land. Over time, buildings will emerge in the woods and from the ruins of farmsteads – some temporary, some permanent. This is slow architecture that plays to the strengths of the Price-Alsop mindset, where serious design and epic picnics combine.

There is a related though more conventional project in China for another landowner. 'It's evolutionary, imprecise,' says Alsop. 'From an urban point of view, it starts from "knock nothing down".'

With that, he's off for a cigarette. What are we to make of Will Alsop? I asked Bryan Appleyard, cultural commentator and author, to describe his friend. Appleyard replied: 'Will is a rare kind of artist whose work and personality are inseparable. His personality is big, generous, colourful, inquisitive, risky and, often, alarming. It is also meditative. I remember him sitting, Buddha-like, lost in contemplation of a room in a building which we were judging for some prize or other. He had seen something I hadn't. It was, I realised when I looked again, a small wonder, an entirely original space. And that, come to think of it, is a pretty accurate description of what lies between Will's ears.' ●

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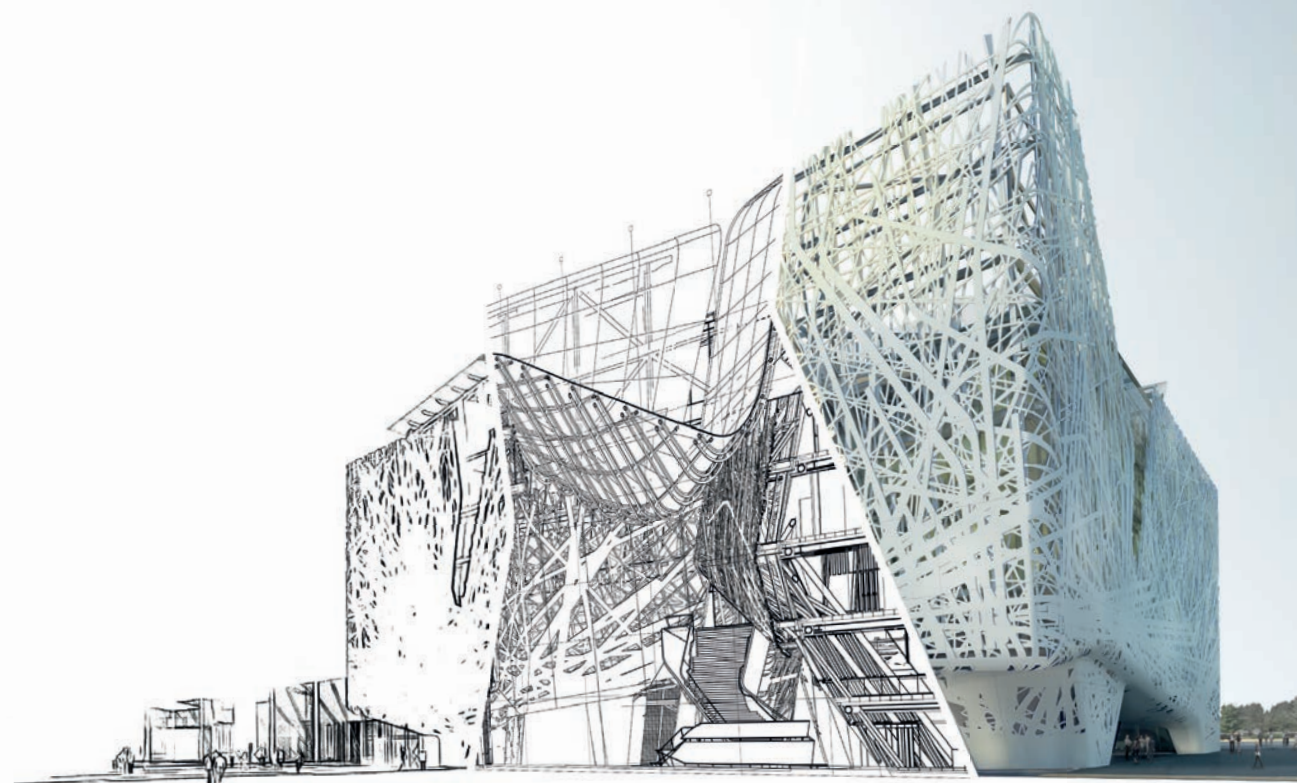
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Word perfect

Ian Hamilton Finlay's poetry and relationships are brought to entertaining life in this gentle but lively show

Hugh Pearman

If you know the remarkable preserved domestic interior of art collector Jim Ede's house and gallery Kettle's Yard in Cambridge, with its masterly (if externally mute) 1970 Leslie Martin extension, then you will know why Scottish-based concrete poet Ian Hamilton Finlay had a bit of a problem with it, and it with him. Ede was your classic good-taste music-recital soft-modern Cambridge aesthete, if much more interesting than that implies. He was an inveterate arranger of pebbles, satirised by Finlay in a 1995 aphorism, incised inevitably on a pebble. It reads: 'KETTLE'S YARD CAMBRIDGE ENGLAND IS THE LOUVRE OF THE PEBBLE'. It is of course in this exhibition.

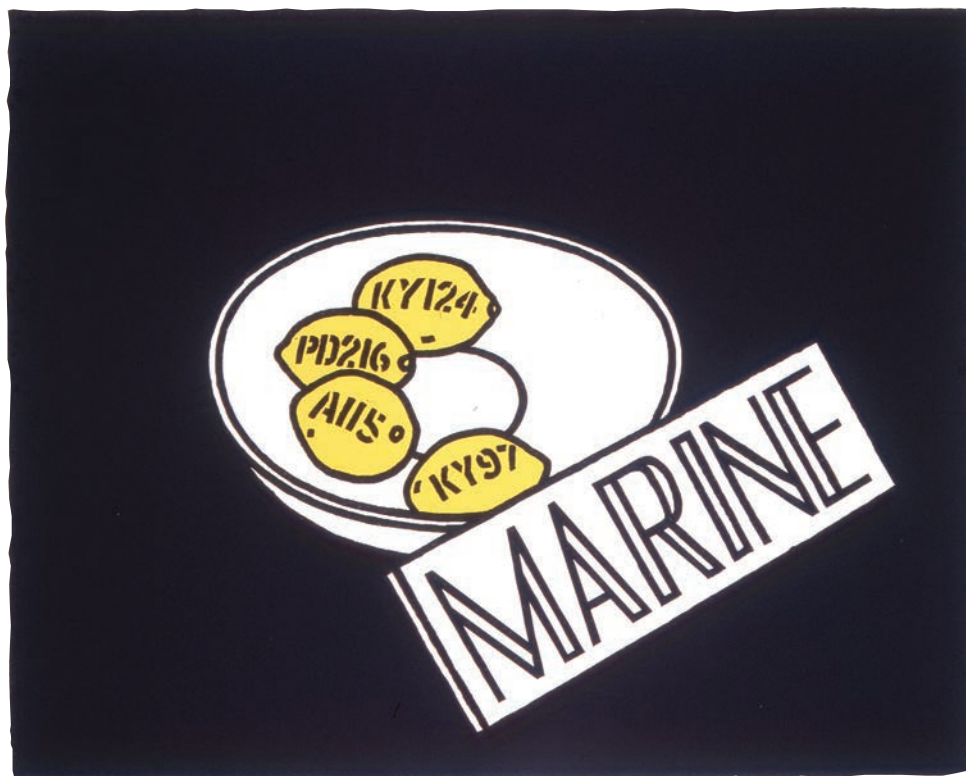
Ede and Finlay never fell out, it's just that Ede didn't really understand Finlay's art, or the idea of concrete poetry at all. If you're used to the naïve fishing-boat paintings of Alfred Wallis, say, or the abstraction of Ben Nicolson, then the idea of an arrangement of words and letters – let alone puzzling slogans – somehow becoming art must have seemed strange, especially in the mid 1960s when Ede first encountered Finlay.

Ede seems to have gamely attempted to get to grips with Sixties art experimentation, but by then he was 70. He knew what

he liked and it was understandably enough mostly pre-war to the 1950s. Nor, as a modernist, did he have much sympathy with Finlay's growing espousal of neoclassicism. Once, however, he bought one of Finlay's inscribed bowls. Obviously the whole point of such work is that you can see the inscription. Ede filled the bowl with his pebbles, so negating it. Then he wrote to Finlay to tell him so. It was this challenge that eventually led to Finlay's inscribed pebble-Louvre jibe.

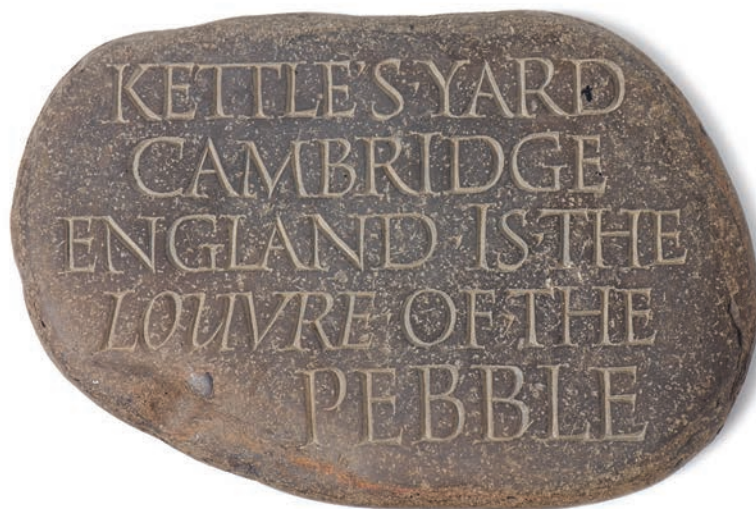
You might think, then, that Kettle's Yard – now owned by Cambridge University, with its later temporary exhibitions gallery and

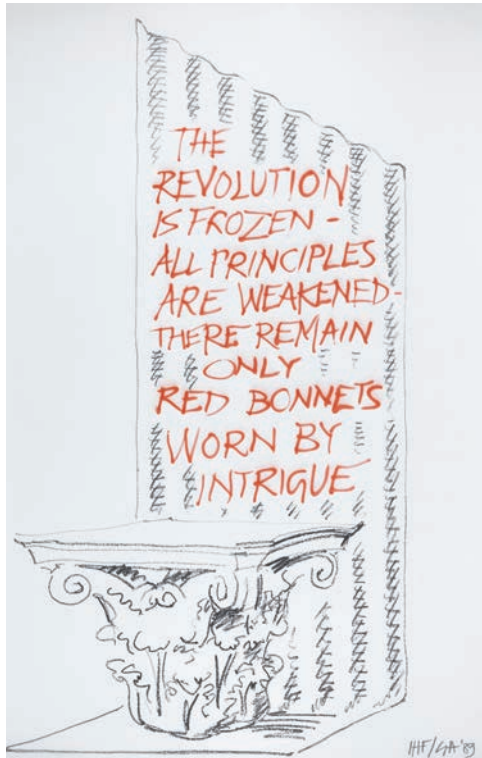
Ede bought one of Finlay's inscribed bowls and filled it with his pebbles, so negating it



Above Marine, 1968 – art made of words and letters.

Right KETTLE'S YARD/CAMBRIDGE/ ENGLAND IS THE/ LOUVRE OF THE PEBBLE, 1995, Finlay's revenge on Ede.





He takes the slogans and aphorisms of the Revolution and renders them absurd by re-imagining them

plans for further extension by Jamie Fobert – is a strange milieu for an exhibition on Ian Hamilton Finlay, who died in 2005. But not at all, since there was a third, younger, individual, a friend of both men, whose personal collection forms the basis of this show: Cambridge art historian Professor Stephen Bann. Just as Ede had collected artists he knew, so Bann acquired over time significant small-scale works by Finlay, mostly on paper.

'As you know,' Finlay wrote to Bann, 'I am very fond of Jim, and don't in the least mind that he doesn't like my works. But you must not be disappointed and you will remember, won't you, that he has that particular firmness which is developed by vegetarians through Years of saying no, firmly, to meat-eating Hostesses.' Now Kettle's Yard has said Yes, and the domestic scale of its galleries are perfect for work of this kind.

Finlay is these days best known for his sculptural output – the concrete poetry expressed in actual concrete, if you will – especially as arranged in and around his house in the Pentland Hills near Edinburgh, which he named Little Sparta in sly opposition to the 'Athens' of Edinburgh. Here is where his often militaristic imagery – aircraft carriers, tanks, nuclear submarines – meets his utterly individualistic take on the French Revolution. He takes the slogans and aphorisms

of the Revolution and, more often than not, renders them absurd by re-imagining them. 'Too much chatter sprains the soul' is my favourite, one of his 'Imaginary Speeches of Saint-Just'.

Sometimes just the visual joke is enough. A famous work at Little Sparta, shown in an early 1970s film here, is a tombstone-like inscription that reads 'Bring Back the Birch'. The piece is overhung by a birch tree. The idea of humour in art was nothing new – Finlay always tipped his hat to the Dadaists – but his sloganising and monument-making started a movement of its own which continues in a lively fashion today. First-rank contemporary artists such as Nathan Coley owe much to him.

This is a modest, gentle, rewarding show, enlivened by Finlay's loquacious letters to Bann that reveal his thought processes. For me his whole approach is summed up in one work – a Cambridge-blue scarf. Embroidered in one corner is a classic minimal Finlay word-piece, forming a perfect square: ART IS A SMALL ADJUSTMENT ●

Beauty and Revolution:
the poetry and art of Ian
Hamilton Finlay
Kettle's Yard, Cambridge,
until 1 March 2015



Above left Re-imagined aphorism: The Revolution is Frozen [collaboration with Gary Hincks], 1990.

Right Art is a small adjustment, which sums up Finlay's whole approach.

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David Mackay 1933 – 2014

Political advisor, writer, lecturer and Amnesty president who lived for 60 years in Catalonia and designed Barcelona's 1992 Olympic village



KERR ROBERTSON

One of the most influential British architects of the post war period, David Mackay was also one of the most charismatic and influential figures in Catalan public life. David's activities stretched from internationally-significant master-planning and architectural practice to teaching, writing, chairing competitions

and award juries and contributions to major international conferences across the globe. He was a brilliant, intuitive designer, a gentle but determined leader of multi-disciplinary teams on major projects, an advisor to senior politicians and governments and a highly regarded leader among his professional peers.

He was also a man of great learning, a voracious reader, writer of achievement, passionate ambassador for his adopted Barcelona and Catalonia both at home and on the international stage, an adoring husband and devoted family man. His was a life of extraordinary achievement.

Born in Eastbourne, Sussex, and educated in England, David Mackay lived and worked in Barcelona for nearly 60 years. The practice, founded by Oriol Bohigas and Josep Martorell, in which he became a partner in 1962, MBM Arquitectes, evolved as one of the pre-eminent architectural practices in Europe. Its work has helped to shape many cities and fundamentally influenced the evolution of European architecture and city planning.

In 1957 David married his beloved Roser Jarque who he had met when they were both tenants in the same street in Highgate, London. With characteristic understatement, he later described his relationship with Roser as the greatest bond of his life. It was a bond which in time resulted in six children, 12 grandchildren and two great-grandchildren.

Martorell, Bohigas and Mackay's work is characterised by its simplicity of form and human scale. Their urban spaces are welcoming to inhabitants and add to the quality and vibrancy of the many towns and cities where they have worked. David Mackay's urban design of Barcelona's Olympic village in 1992 and the more recent Design Museum in Barcelona are inspired additions to his adoptive city, enjoyed by millions of visitors each year.

In addition to his extensive architectural practice, David bravely became the first president of Amnesty International in Spain. He wrote and lectured widely and was a guest professor at Washington University, Saint Louis and Wisconsin University, Milwaukee. He was a senior advisor to Britain's deputy prime minister, John Prescott, in the late 1990s. In 2004, he was awarded an honorary Doctorate by the University of Plymouth.

Among a plethora of honours and awards, he was an honorary member of the Bund Deutscher Architekten, honorary fellow of the Royal Institute of the Architects of Ireland and a supportive friend and honorary fellow of the Royal Incorporation of Architects in Scotland.

Although David was Anglo-Irish, his Scottish sounding name, his affection for Scotland and the many links he forged there have resulted in the often repeated error that David was Scottish. He never refuted this and indeed took some pleasure in this additional national identity which augmented his English, Irish and Catalan roots.

His recent step down from MBM reduced his workload, but also marked the start of new adventures as the honorary president of the AxA – Architects for Architecture European Forum – a cause close to his heart.

David had the poetic spirit of the true architect. His books, *A Life in Cities* and *On Life and Architecture*, testify to the richness of his life and the profound insights he achieved. His built projects, many masterplans, publications and architectural teaching will continue to benefit mankind now and in future generations. ●

Neil Baxter is secretary at RIAS. Longer version at RIBAJ.com

In Memoriam

HUBERT HAROLD PORRITT
ELECTED 1953, NEWCASTLE UPON TYNE

JOHN SYDNEY FREDERICK PINNOCK
ELECTED 1953, SHREWSBURY

JOHN SIDNEY PANTLIN
ELECTED 1955, WIMBORNE, DORSET

CHRIS NORMAN COWEN
ELECTED 1965, RUTHIN, CLWYD

JAMES ALLAN MCALLISTER
ELECTED 1968, BALLYNAHINCH, COUNTY DOWD

WILLIAM DEVENPORT EVANS
ELECTED 1971, LLANGFN, GWYNEDD

NIGEL RONALD CRESSWELL
ELECTED 1974, GUERNSEY

BRIAN O'NEILL
ELECTED 1976, NEWRY, COUNTY DOWD

JAMES ROBERT SORRELL
ELECTED 1978, RUGBY, WARWICKSHIRE

JOHN FOSTER DUTTON
ELECTED 1978, STOURBRIDGE, WEST MIDLANDS

STEPHEN EMANUEL
ELECTED 1979, EXETER, DEVON

STEPHEN CHARLES FARRIS
ELECTED 1987, HARPENDEN, HERTFORDSHIRE

NICHOLAS NOEL JAY
ELECTED 1987, ST PHILBERT SUR ORNE

JAMES THOMAS BUXTON
ELECTED 1991, RUNCORN, CHESHIRE

RICHARD MICHAEL DONNELLY
ELECTED 1993, BRIDGEND, MID GLAMORGAN

JACK WINTER READ
ELECTED 1947

OLIVER LAW
ELECTED 1933, LONDON

HARRY ANTHONY WHEELER
ELECTED 1952, EDINBURGH

CERI GRIFFITHS
ELECTED 1951, NEWPORT, DYFED

RAYMOND JAMES MOXLEY
ELECTED 1953, SALTASH, CORNWALL

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Exchange

Real measures to judge schools

Matt Thomson's 'Its all about knowledge' (RIBA J December 2014) alludes to the nub of the current schools debate. What constitutes a fit for purpose school?

In this contractor-led market where expectations are depressingly low, following years of unfulfilled promises, pragmatism is the name of the game. While architects may promote inspirational flexible spaces which uplift children and provide a wide range of educational possibilities, their voice is seldom heard above the clamour to cut costs.

Any initiative to develop a comprehensive post-occupancy evaluation process is to be applauded. The CIC Design Quality Indicators for Schools was a good start, but we must go beyond this and address tangible educational outcomes such as exam results, absenteeism and behaviour. These are the true measures of performance and should inform the debate.

Only with this evidence will the funding authority be able to direct resources where it will genuinely add value – and architects can do what we do best, design schools which are truly fit for the needs of our time rather than simply replacing worn out schools with more of the same.

Ian Wilson, Newcastle

Value judgements

Oh the intrigue, irony and lack of moral and democratic values. President Hodder decrees that the Palestine Resolution is rescinded because it is not a 'valid' topic for the RIBA Council to take a view on. A modest but pyrrhic victory for the Israel apologists since Council had already expressed its view in the March debate by voting substantially in favour of Israel's suspension from the UIA. Nothing short of another debate will determine a different Council view, and Hodder, in his surrender to the Israeli lobby, has ruled that he will not



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(dare not) allow further debate. Such irony.

Political action for self interest is of course OK, when the RIBA is lobbying the government for greater investment in construction, but curiously we become a neutered charity over concern for oppressed peoples around the world.

By this curious logic the Institute's disassociation from that other apartheid regime, South Africa, was also invalid. Will Hodder be bringing forward another retrospective decree to that effect?

Bob Giles, Eastbourne

Title fight

When I qualified as an architect many years ago, I was told and soon learnt in practice that not only is the architect responsible for the design and construction of buildings but by definition is also the professional team leader. While this adds to our liabilities, it more importantly signifies the prestige which our profession enjoys.

I am now alarmed to see that the new CDM Regulations, coming into force in April 2015, define the person overseeing 'health and safety' matters as the 'principal designer'. In common parlance in the wider world this is surely what an architect is.

This usurps and is a total abuse of language which will further undermine our profession, especially when every building site throughout the country will be festooned with a board naming a health and safety supervisor by their self-styled new title.

What has the president and council of the RIBA done about this – and what will they now do to overturn this hijacking of our hard-earned professional status?

**Daniel Rosenfelder
London NW3**

Style file

The reply to Brian Loudon's query about the 'strange squiggle' (Exchange, November 2014) does nothing to explain the presence, and awkward appearance, of this 'odd' feature in selected pieces of text.

A more coherent explanation would be of interest.

Derek Fordham

It is part and parcel of our special fonts, a matter of style –Ed

Tweetback

We won Magazine of the Year in our category at the International Building Press awards in November...

shumi bose @tontita00

Congratulations @RIBAJ and team. Such a good looking, goodness-filled thing that you make!

Frank Gehry's Louis Vuitton Foundation in Paris appealed to many – or did it?

The Circus @the_circus_mag

@RIBAJ Digging the collapsed greenhouse look. Nice.

Nino @NinoRosella

Wow a crashed spaceship! RT @RIBAJ: In the shadow of Duchamp: Gehry's glass gallery for Paris.

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Steel Intelligence

Wriggle room

New circulation routes prepare Reading station for the future

60

Cost conscious

How to stay on top of steel costs right from the start

63

Take it to the top

Landscape references hold sway at Stonehenge visitor centre

65

Up and under

Neil Thomas loves Wilkinson Eyre's rotating Gateshead Millennium Bridge

68



RICK ROXBURGH

How much does your building weigh, Buckminster Fuller once famously asked Norman Foster of the Sainsbury Centre in Norwich. For most architects and their clients however, it's more a matter of how much does it cost, and while weight is an important factor it's certainly not the only issue, as discussed in our feature on calculating the cost of structural steelwork (p63). Visual lightness was a particular aspiration at Denton Corker Marshall's delicately columned Stonehenge visitor centre (p65). What a contrast with the powerful steelwork at Grimshaw's Reading Station, where mighty columns and trusses create a new transfer deck and platform canopies in preparation for a substantial increase in passenger numbers.

Pamela Buxton, supplement editor

In association with



TATA STEEL

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J



Blue ribbons for Reading

Dynamic ribbons of steel sweep over the platforms at Reading's reworked and extended station

Words Pamela Buxton

Creating a sense of grandeur is much more challenging at a through-station than a terminus. This aesthetic ambition was just part of the task facing Grimshaw in its 15,000m² reworking of Reading railway station, one of the busiest outside London. Not only did the practice need to greatly improve station facilities to cope with a huge growth in passenger numbers, it had to do so with minimum disruption to the trains passing through.

Grimshaw's solution was to create a grand new steel-framed transfer deck/concourse, assembled to the side of the tracks in three parts and then ingeniously pushed into place over the tracks at night time. Cleveland Bridge created the concourse framework with Bourne Construction Engineering installing platform canopies and entrance buildings at either end of the deck.

The new passenger concourse and its distinctive platform canopies are part of a larger set of improvements to track and station to alleviate the largest bottleneck on the Great Western mainline. These include increasing the number of platforms from nine to 15 to cope with an anticipated 100% growth in passenger numbers by 2035.

Although Reading station was designed by Brunel, little remained of the original and the former ticket hall had long since been turned into a pub. A retail extension was added in the 1980s on the town side of the transfer deck.

At 31m wide and 100m long, the new transfer deck is considerably bigger than the one it replaced, which was just 8m wide. To avoid clashing with station operations and the listed pub, Grimshaw placed it some 105m to the west of its predecessor and created a

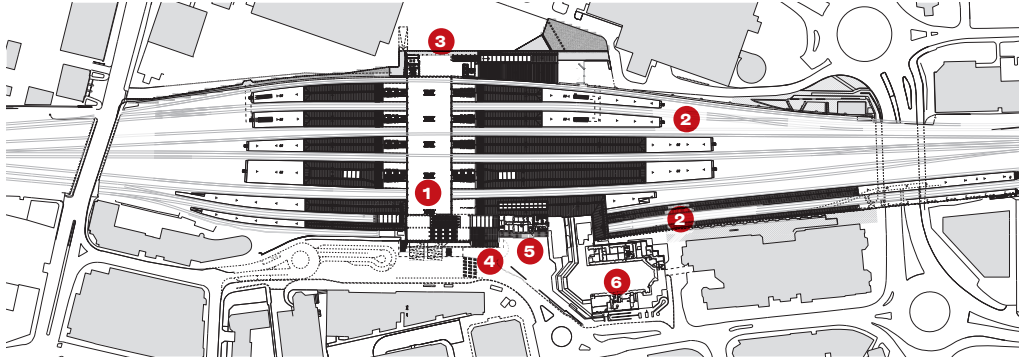
generously proportioned additional entrance leading to the new concourse, with another on the other side of the tracks to the north.

The practice also took the opportunity of the station upgrade to improve links to the north side of the tracks by providing a public thoroughfare beneath them, with access near the new western entrance. Now under redevelopment, this area had previously been cut off from the town by the tracks, and the station improvements are regarded as a vital spur to its regeneration.

With no scope for a grand termini-style shed, the key design elements were the transfer deck and the canopies, which from the platforms snake up and over the new concourse and back down the other side.

'One of the challenges was getting a sense of grandeur on the platforms without a grand hall. Instead we had to use the basic

Site plan



- 1 New transfer deck
- 2 New tracks
- 3 North Entrance
- 4 Western Gateline
- 5 Heritage Building
- 6 Brunel Arcade

0 25 100 250m



components of canopy and bridges to create a station suitable for the number of passengers passing through,' says Grimshaw partner Declan McCafferty. 'The big move was to lift the canopy over the transfer deck to create these grand moments on every platform. It seemed appropriate to mark that with a piece of exuberant steelwork.'

Steel was essential for the structure, he adds, because of the large spans involved and the opportunities it gave for prefabrication.

'Building over an active railway is always a challenge. Anything you can do to build outside the line environment makes it cheaper and faster,' he says.

The deck is formed with a full height Vierendeel truss, which gave scope for large window openings on either side to provide views up and down the line. The curved platform canopies are supported using spine beams stretching the length of the roofs (the longest is approximately 250m). Because of the beams' size, each needed two points of support at each escalator. The architect used pairs of U-shaped columns to minimise obstruction on the platform and create a dramatic feature that is amplified by its repetition across all the platforms.

Prefabricated platform canopy modules made by Bourne are lined with soffits coloured an intense metallic-finish blue – the architect had a limited choice since green, yellow, orange and red had to be avoided because they are used in rail signalling.

Where the canopies soar over the transfer deck, their blue underside is clearly visible so that it can be read as a continuous ribbon element as it passes along the platform and over the deck.

'It's a dynamic, expressive form that reflects the way the passengers move within the station,' says McCafferty. The platform canopies are designed to neatly house all signage and signalling, minimising clutter on



TRANSFER DECK INSTALLATION

Steelwork contractor Cleveland Bridge assembled the passenger transfer deck on piers to the north of the tracks before 'launching' it in stages into position over the railway lines.

The lower deck structure consists of four lines of 1.4m deep plate girders connected by 1m deep plate cross girders. Girders were transported in 28m lengths and spliced adjacent to the tracks. The upper deck structure consisted of 600mm x 600mm jumbo hollow sections, which form a Vierendeel truss with the side steelwork. This was trial erected in Cleveland's Darlington factory before being dismantled and transported to site for welding and re-erection.

In an overnight operation the two larger sections of the complete deck were launched using hydraulic strand jacks with the roof and concrete floor already installed. The first 30m section was manoeuvred into place over four nights without any trains running. However, the second section took just two days with rail traffic carrying on below as usual. The third – a 23m long end section – was erected in-situ over a period of weeks.

Working within a tolerance of 50mm in either direction, the bridge ended up just 3mm away from its target location on the bearings – even better than Cleveland Bridge's 10mm target.

'We surprised even ourselves,' says Cleveland Bridge project manager Ben Binden, adding that although the structure itself was relatively simple, the launch conditions added to the complexity of the task.

Left Platform canopies snake up and over the new transfer deck at Reading station.

Above The new, far wider transfer deck anticipates a sharp increase in passengers at the station.



STEVE KENNEDY

PLATFORM COLUMNS AND CANOPIES

Twenty 'swish'-shaped welded plate girder columns – four per platform – form a key visual feature of the station redevelopment. These were installed by Bourne to help support the spine beams that run the length of the platform canopies before intersecting with the transfer deck. These beams support the platform canopy, which was prefabricated in 3m wide cassette panels at Bourne's factory in collaboration with Lakesmere, and delivered in approximately 450 modular components covering 1,280m. With soffits and standing seam roof pre-installed, each module required only a simple connection to the next. This prefabrication limited the number of crane lifts to 460 – compared to 2100 had the canopy been constructed traditionally – as well as reducing site labour by approximately 3000 man hours. As well as the 'swish' columns, the canopies were supported by 116 additional columns and contain 54 km of cold rolled steel, estimates Bourne.

the platforms. A smooth soffit was essential to avoid opportunities for pigeons to roost.

A particularly challenging part of the station steelwork was the six curved jumbo sections in the new Western Gateline building. These were bent in the UK by Angle Ring Company to give the appearance of a continuous beam with three bends at the top and three at the bottom.

The transfer deck completed in the summer, a year ahead of schedule. According to engineer Tata Steel Projects, it is the largest pedestrian structure in the UK rail system. During the course of the project, it was announced that Crossrail would be extended to Reading by 2019, making the new concourse's extra capacity all the more essential. ●



JIM STEPHENSON

Top A pair of mighty V-shaped columns support the platform canopy at each side of the transfer deck.

Above Repetition accentuates the visual impact of the dynamic canopy structure, which is highlighted with a distinctive blue soffit.

Credits

Client Network Rail

Architect Grimshaw Architects

Structural engineer Tata Steel Projects

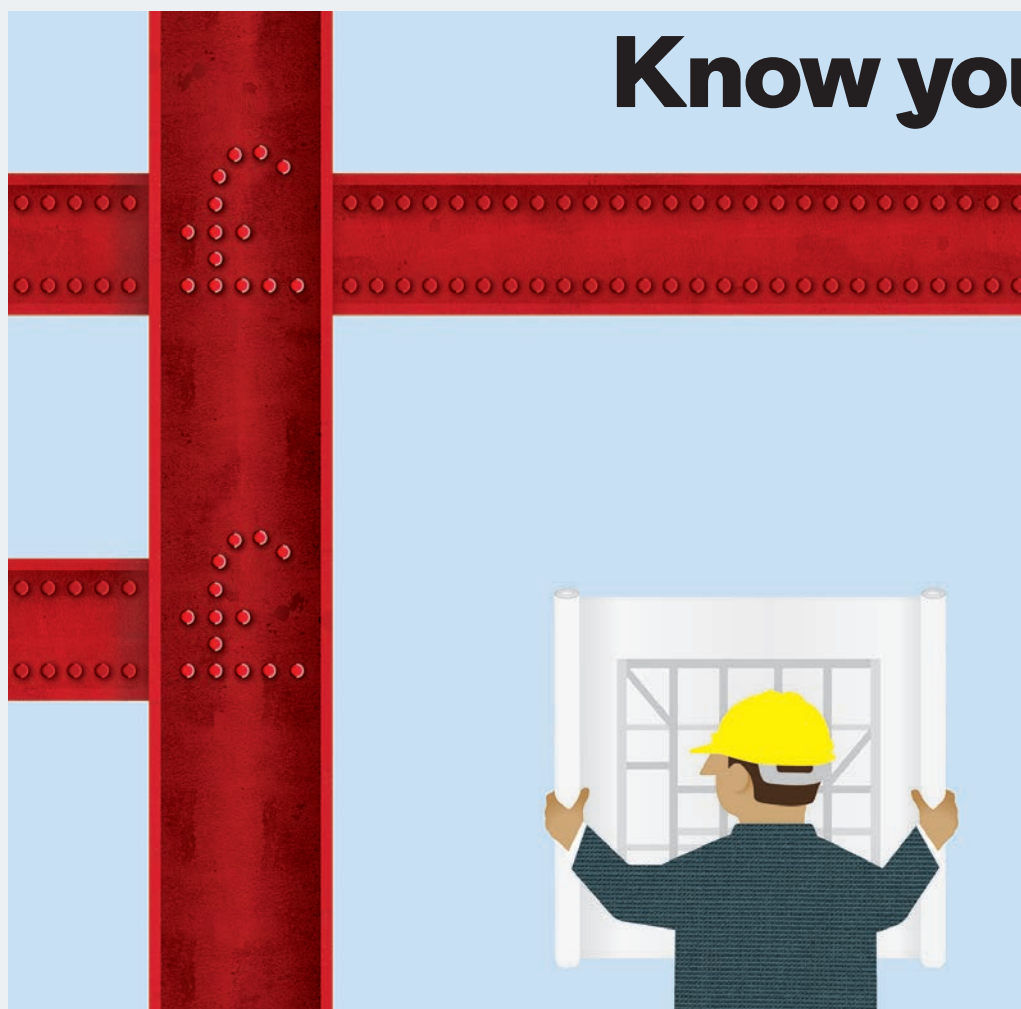
Steelwork contractors Cleveland Bridge UK (transfer deck); Bourne Construction Engineering (platform canopies; entrance buildings)

Main contractor Costain/Hochtief JV

Know your numbers

Don't just leave it to the cost consultants. Chris Dolling of the BCIS explains what architects need to know about costing steel while overleaf we look at the latest tender price forecasts

Illustration Gemma Robinson



While architects don't need to know in detail how to cost buildings, if you want to avoid a nasty surprise when the tenders come back in, you do need a general understanding of the cost impact of the concept design decisions you make. This is especially true on smaller projects which may not have a cost consultant.

Frame choice has a huge impact on design decisions from foundations to cladding as well as the construction programme. Since it is rarely changed at a later stage, it's important to have a clear idea of the cost implications when the initial frame decision is made.

At an early stage, cost consultants use cost models, historical data and benchmarking to arrive at a rate per m² based on gross internal floor area (GIFA) before refining these to suit the particular project and market conditions. At a later stage, when the primary and secondary members have been finalised, the cost consultant will measure the length of each structural member and multiply it by the relevant weight in kg/m before applying a cost per tonne to each frame element.

Key determining factors

The key steel cost drivers below remain the same whatever the trends in tender prices.

Location This is a major cost variant. Indices such as those produced by the BCIS provide cost adjustment factors for location; for example Belfast is the cheapest place in the UK to build, while the City of London is by far the most costly.

Logistics Site specific conditions are also relevant when it comes to costs. Whereas there might be easy access when building an isolated business park, the restraints of a busy city centre site can have a major impact on the installation programme because of limitations imposed on deliveries, storage, noise, craneage and working hours. Less constrained sites might also allow more standard framing solutions while those requiring non-standard grids will reduce the level of repetition and so increase costs.

Function, sector and building height Due to their different usage and subsequent varying frame weight, sectors can show a

wide disparity in typical costs for the same floorspace. Longer spans – particularly desirable in speculative commercial spaces – generally mean heavier sections and a heavier overall frame, although cellular beams can lead to subsequent savings by reducing the depth of the floor and services zone. An industrial shed, for example, might have a frame weight of 40kg/m² GIFA compared with a long-span city office building's 90kg/m² GIFA. Overall building height is another

BCIS LOCATION FACTORS, AS OF 3 OCTOBER 2014 UK MEAN = 100

| Location | BCIS Index | Location | BCIS Index |
|----------------|------------|-----------|------------|
| City of London | 112 | Leeds | 91 |
| Nottingham | 94 | Newcastle | 92 |
| Birmingham | 96 | Glasgow | 99 |
| Manchester | 92 | Belfast | 63 |
| Liverpool | 87 | Cardiff | 98 |

important factor since a higher steel frame weight per kg/m² is required on multi-storey construction.

The table below gives indicative costs for three types of multi storey building and two types of industrial steel buildings.

Building type Particular sectors have special cost factors to consider for steel. Both healthcare – in particular hospitals – and education buildings require a mix of facilities that will often use different grids and loadings and will be outside standard cost ranges. In both these sectors, partnering and framework arrangements are common – which may mean that costs have already been set out for a number of projects and will have a bearing on initial estimates. Education buildings can also be subject to costs associated with a timetable driven by the academic year.

Form and complexity Form is often more relevant than the quantity of steel involved since simple steelwork is far cheaper than complex designs. Complex forms generally increase the need for non-standard sections and connections, and may require more

| INDICATIVE COST RANGES BASED ON GROSS INTERNAL FLOOR AREA (3Q 14) | | |
|--|----------------------------------|----------------------------------|
| TYPE | GIFA rate (£): BCIS Index 100 | GIFA rate (£): City of London |
| Frame 1: low rise, short spans, repetitive grid /sections, easy access | 80 - 108/m ² | 95 - 130m ² |
| Frame 2: high rise, long spans, easy access, repetitive grid | 134 - 160/m ² | 149 - 180/m ² |
| Frame 3: high rise, long spans, complex access, irregular grid, complex elements | 154 - 180/m ² | 175 - 200/m ² |
| Floor: metal decking and lightweight concrete topping | 43 - 61/m ² | 50 - 70/m ² |
| Floor: precast concrete floor and topping | 48 - 65/m ² | 55 - 75/m ² |
| Fire protection (60 min resistance) | 7 - 16/m ² | 9 - 18/m ² |
| Portal frames: low eaves (6-8m) | 48 - 70/m ² | 58 - 80/m ² |
| Portal frames: high eaves (10-13m) | 58 - 80/m ² | 70 - 96/m ² |

complex structural solutions such as transfer structures and fabricated beams, which will also push costs higher. Varying the floor-to-floor heights can also have knock-on effect on other costs such as substructure and cladding.

Likewise, buildings with a high degree of standardisation are more likely to conform to traditional build costs.

Structural frame cost breakdown

Minimum weight doesn't necessarily mean minimum cost. Raw material proportionally accounts for just 30-40% of the total steel frame according to the BCSA, with fabrication accounting for a similar proportion followed by fire protection and erection at 10-15% each. Steel design and engineering accounts for 2% and transport for the remaining 1%.

Common pitfalls

Beware simplistic comparisons with the costs of previous projects. It's tempting to look at a superficially similar project of twice the size and estimate that the steelwork for the new project would therefore cost roughly half as much. But that doesn't take into account all sorts of factors such as the size of spans, fire protection, cladding, service integration, and overall construction programme. For specialist systems such as cellular beams, shallow floors or steel bearing piles, the cost of the system itself should not be looked at in isolation but considered in tandem with the many implications of the choice. The most cost effective solutions are those that achieve the best balance between the product cost and the fabrication/erection time. ●

TENDER PRICES ON THE RISE

Tender prices are generally on the up according to the latest market figures from Gardiner & Theobald (G&T). The firm forecasts a 4% rise in average tender rates across the UK in 2014 followed by 3.5% in 2015 and 2016 and 4% in 2017. In London, the increase is 6% for 2014 then 4.5%, 4% and 3.5% for the next three years.

Development activity has been particularly strong in the residential sector in London and the south east, but major regional cities have also shown growth. G&T senior associate Rachel Oldham expects demand for commercial space and infrastructure work to rise in the near future.

With five year cumulative rise forecasts of 22% for the UK, substantial inflation allowances should be built in when costing projects going out for tender in the future.

'With the decision on which framing material and configuration to use taken quite early in the process, it can be difficult in changing market conditions to identify the most cost effective framing solution. So it's important to keep talking to the supply chain to understand lead times and how the market is changing,' says Oldham.

Structural steel and concrete both showed tender price rises for the second and third quarters of 2014 in response to increased demand in the commercial sector in particular, according to cost indices from the Department for Business, Innovation and Skills. Compared with the start of the year however, structural steel prices remain at a similar level while concrete and cement have risen by 3% and 5%. Manufacture of structural steel sections increased in price by £20/tonne in May 2014, and the BCSA expects structural steelwork prices to increase steadily in comparison to other construction materials.

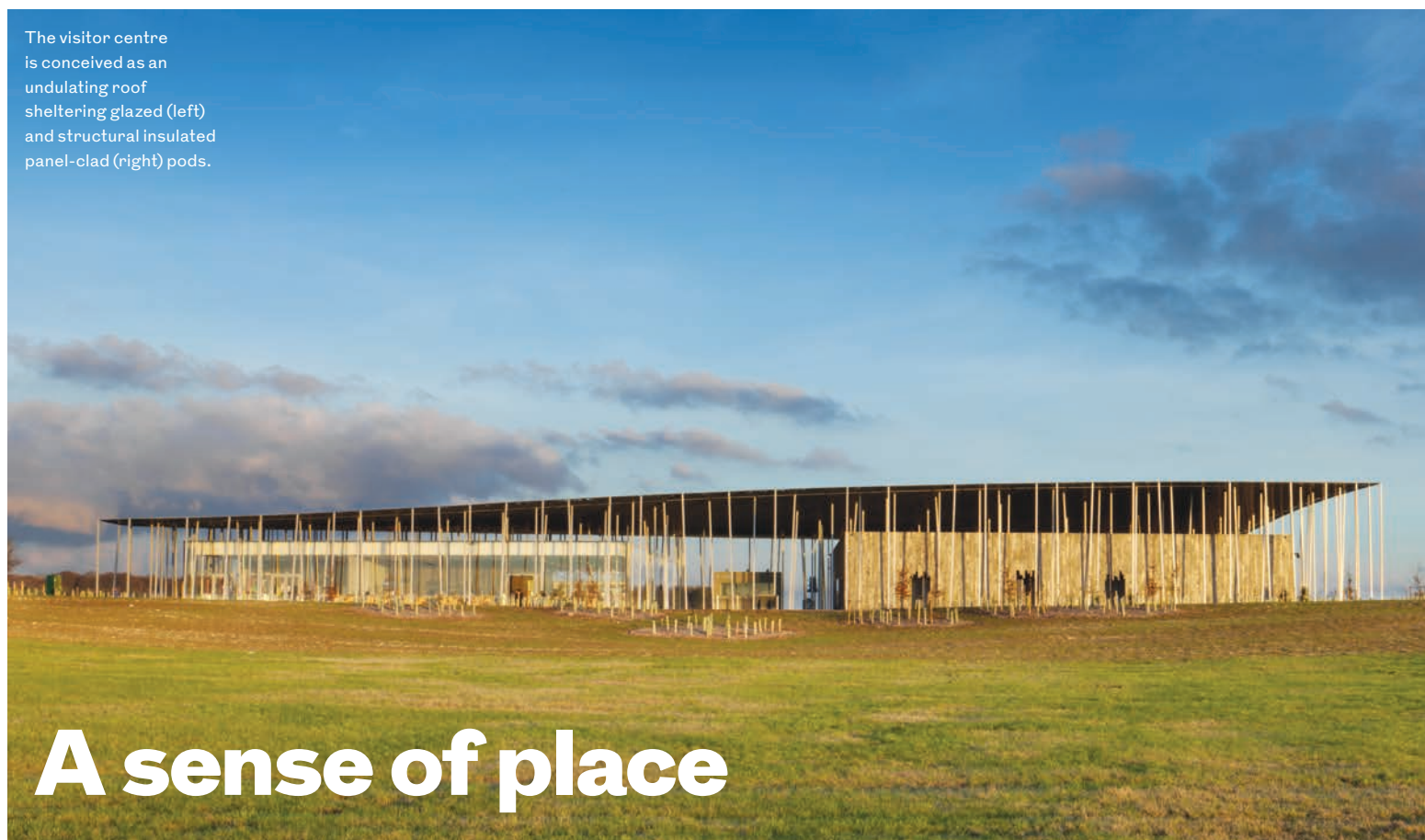
G&T's research is in the latest version of Steel Construction: Cost, published by BCSA and Tata Steel. This also includes an update of its ongoing study on comparative framing costs, which shows that steel remains a competitive framing material. Below are rates for Q3 2014 on GIFA basis for a City of London location.

| BUILDING 1: RECTANGULAR THREE-STOREY BUSINESS PARK OFFICE | | | | |
|---|-----------------------|--------------------------------|-------------------------------|-----------------------------------|
| | Steel composite | Steel + precast concrete slabs | Reinforced concrete flat slab | Post tensioned concrete flat slab |
| Substructure | £56/m ² | £60/m ² | £72/m ² | £67/m ² |
| Frame and upper floors | £150/m ² | £164/m ² | £157/m ² | £162/m ² |
| Total building | £1,613/m ² | £1,643/m ² | £1,716/m ² | £1,696/m ² |

| BUILDING 2: EIGHT-STOREY, L-SHAPED CITY CENTRE OFFICE | | |
|---|--------------------------|--------------------------------|
| | Steel cellular composite | PT concrete band beam and slab |
| Substructure | £60/m ² | £64/m ² |
| Frame and upper floors | £208/m ² | £228/m ² |
| Total building | £1,958/m ² | £2,026/m ² |

More at: www.steelconstruction.info/Cost_of_structural_steelwork

The visitor centre is conceived as an undulating roof sheltering glazed (left) and structural insulated panel-clad (right) pods.



JAMES O'DAVIES/ENGLISH HERITAGE

A sense of place

Discretion and deference informed design of the long-awaited and contextual visitor centre to Stonehenge

Words Pamela Buxton

You can't actually see Stonehenge from its new visitor centre. Not that this bothers architect Denton Corker Marshall, whose delicate, steel-framed building concludes English Heritage's 30 year quest to find a better way of presenting the world famous prehistoric monument. On the contrary, the centre's position some 2.1km from the Stones and its low profile appearance are an essential part of the practice's aim of creating a building with minimal impact on the main attraction, which is revealed to visitors after they leave the new centre and move towards the monument through the landscape.

While the Stones themselves convey immense solidity and permanence, the visitor centre is all about lightness and transparency, achieved with the use of more than 300 strikingly slender, angled steel columns supporting an undulating roof.

Denton Corker Marshall won a fresh competition for the project in 2008 after its

previous scheme was scuppered by road tunnelling issues. The challenge was how to achieve a setting for Stonehenge that befitted its World Heritage Site status while also meeting visitor needs.

First the decision was made to position the visitor centre some distance from the Stones at Airman's Corner to the periphery of the site, in order to move as many of the facilities as possible away from the monument. In tandem with this came the architect's idea of containing water storage and treatment facilities in a separate building, which simplified requirements for the centre itself.

The next issue was how to create a suitably restrained expression for the building that didn't reference the material or construction of the Stones. In addition, it was important to the architect that the building didn't exceed the 7.4m height of the tallest trilithon stones. Denton Corker Marshall founding partner Barrie Marshall suggested

the pared-back concept of a waved roof atop a host of columns sheltering two distinct pods.

'We didn't want to put a structure in the landscape that felt static and rigid. A thin undulating canopy however implies lightness. Vertical columns wouldn't work aesthetically but having them at a camber naturally pulls it all together,' says Denton Corker Marshall associate Dominic Davey.

The architect worked with engineer Sinclair Knight Merz (now Jacobs) and steelwork contractor S H Structures to devise a suitably respectful, and if necessary removable, structure that would leave no lasting impact on the site. This led to the design of a raft foundation that was just 300mm thick, floating on fill over the retained top soil. This continuous slab was more appropriate than discrete footings in order to ensure that the canopy is held down in high winds, and also to mitigate potential differential settlements, which was

particularly important given the north pod's fully glazed facade.

Before choosing steel for the frame, the engineer considered timber with glulam spine beams, but found that the depth of the glulam would be too big for the lightness the architects were after. Having settled on steel instead for both the canopy and the myriad of columns because of its superior strength-to-weight ratio, the engineer used the pods to stabilise the structure.

'We couldn't let the roof swing around on slender columns without some other restraint so we used the pods themselves...If you weld the columns up to the canopy structure it acts like an inverted cantilever with the columns restraining the canopy and putting the horizontal load into the roof of the pod,' said project director Paul Swainson.

The roof geometry was the key challenge. While meeting the architect's vision for a lightweight undulating canopy, the engineer and steelwork contractor considered the need to standardise its fabrication and erection

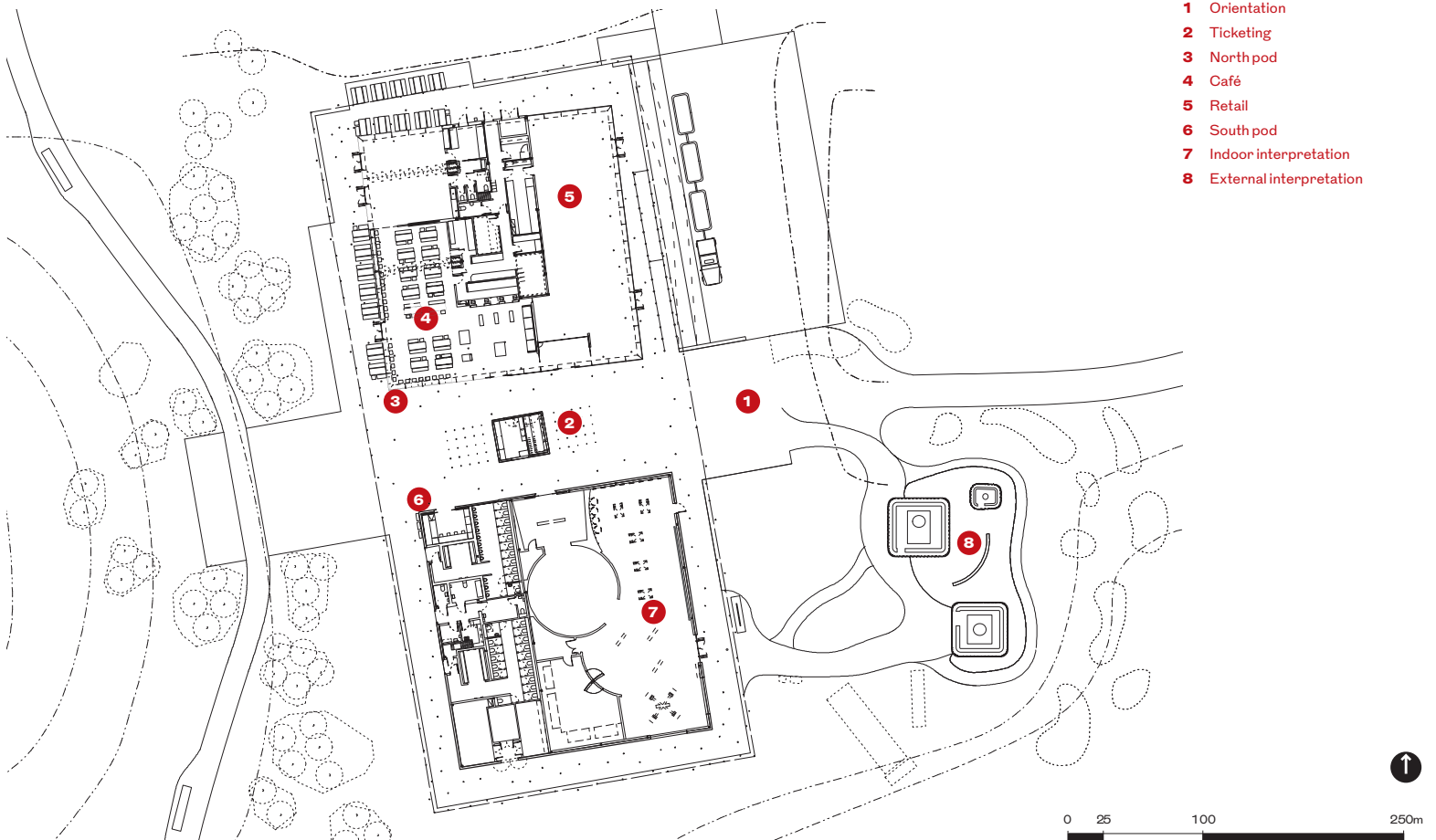
Having settled on steel for canopy and columns because of its superior strength-to-weight ratio, the engineer used the pods to stabilise the structure

as far as possible. The roof grillage was therefore oriented so that all the members lying parallel to the roof's valley feature are straight, while those in the orthogonal direction are curved to a standard radius. In this way, the contours of the timber rafters plus associated deck and soffit naturally follow the canopy's single curvature.

One roof, two pods

The roof shelters two pods with independent steel-framed structures of beams and columns with bolted connections. The north pod is glazed with 795m² of café and retail facilities incorporating discreetly positioned cross-bracing to stabilise the frame. The south pod is a 809m² exhibition space with clear spans of up to 17.5m. The latter is clad with structural insulated panels that are designed to function as stressed-skin diaphragms to stabilise the steel frame by transferring lateral loads from the roof to the foundation. The roof is clad in zinc, with a perforated soffit around the perimeter to deliberately

Visitor Centre site plan



blur the boundaries between the canopy, the sky and the landscape.

Co-ordinating the setting out of the raking columns was also quite a task at both design and installation stage. Each column had to be individually threaded from ground level – or in the case of the shorter columns on top of the pods from pod roof level – through permitted locations on cladding joints to meet a roof grillage member 140mm beyond the clad surface.

S H Structures completed the pods in just two weeks each, with the roof canopy taking three months to erect in careful sequence with the columns (see box).

Work has recently finished on the restoration of the immediate landscape around the Stones, bringing to a close the epic process of replacing the 1968 visitor centre and improving the monument's setting. Both the Stones and the new £27m visitor centre can now be far better appreciated by the one million visitors that make the pilgrimage there each year. ●



SINCLAIR KNIGHT MERZ (NOW JACOBS)



COLUMNS

More than 300 raking steel columns support the roof grillage, each made from 100mm by 100mm square hollow sections. These form a perimeter line around the building to support the perforated zinc edge of the roof canopy as well as providing support through and around the pods and orientation area. In the café, these give the illusion of carrying through as unbroken columns up through the café soffit and on towards the roof. However, the approximately 100 upper column sections are actually separate, shorter columns that spring from the pod roofs and play a major role in providing stability. According to the engineer, these act as inverted cantilevers with fully welded, moment-resisting connections to the canopy grillage and pinned connections to the pod roof beams, and then to the raft foundation.

PETERCOOK

ROOF

The 80m by 40m roof canopy is formed by a grillage of curved and straight 200mm by 100mm hollow sections. Installation provided steelwork contractor S H Structures with a major challenge since the roof members needed to be installed on top of raking columns. These required propping individually, a grid line at a time, in readiness for the roof steelwork to be installed. This was delivered to site in curved 'ladder' sections formed from 17.5m long, Rectangular Hollow Sections. Once positioned in place on temporary supports, the splices in the ladder trusses were welded together to create the undulating form, with shorter secondary welded members added to give the canopy stiffness. The steel structure supports softwood rafters and curved plywood sheeting to the deck and zinc soffit surfaces. Finally the shorter, pod-top columns were welded to the canopy steelwork and the temporary supports removed.

Credits

Client English Heritage

Architect Denton Corker Marshall LLP

Structural engineer Sinclair Knight Merz (now Jacobs)

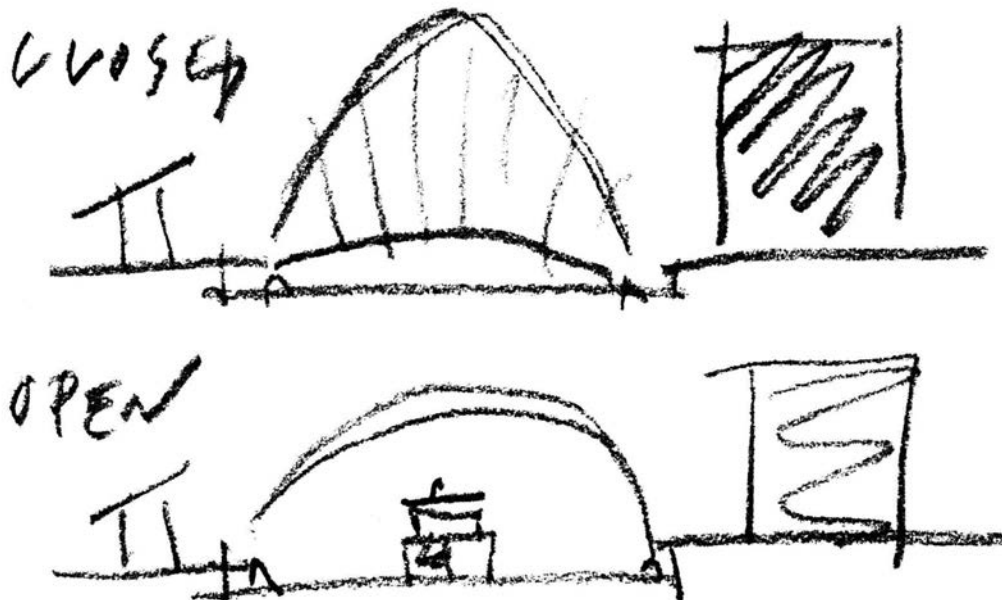
Steelwork contractor S H Structures

Main contractor Vinci Construction UK

A beautiful blinking eye



Neil Thomas of Atelier One is inspired by the beauty and elegance of the Gateshead Millennium Bridge, designed by Wilkinson Eyre and engineered by Gifford



WILKINSON EYRE ARCHITECTS



GRAEME PEACOCK

I walked across this bridge many times while working on the Baltic Centre for Contemporary Art in Gateshead. When closed, it is quite spectacular, and a beautifully balanced piece of engineering. However nothing prepares you for the surprise when the bridge begins to rotate.

Jim Eyre's explanation of its genesis is ridiculously simple. When closed, the bridge was required to be 4.5m above the Tyne's spring level, allowing small traffic. A direct connection between each quayside would be too steep. However he realised that curving the deck in plan could achieve the length required to produce a shallower incline.

Here was the masterstroke. He noticed that the bend of the deck to form the necessary curve was now 25m – the exact dimension that was required for clearance for large river traffic when the bridge was open. By simply rotating the horizontal deck, an arch structure to suspend the deck became obvious.

The complex steel arch, made by Watson's of Bolton [now Severfield (UK)], uses a varying kite section to alter the perception of the solidity of the arch. The entire structure was transported by floating crane on the Tyne and installed in one piece.

Truly a work of genius. ●

Top Jim Eyre's sketch shows the concept for the footbridge in open and closed form.

Left The bridge deck rotates up to allow large river traffic to pass beneath.



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- 1: The Specification and Design Considerations of Stair Edgings**
- 2: The Specification and Design Considerations of Barrier Matting Systems**
- 3: The Specification and Design Considerations of Wall, Corner and Door Protection Systems**

Gradus has extensive product and application experience and combines this with the latest legislation to provide several RIBA approved CPD's. As a manufacturer of several different product categories, Gradus can provide unique insight into how products can be designed and installed to complement each other.

JohnBrash

T: 01427 613858
E: info@johnbrash.co.uk
W: www.johnbrash.co.uk/request-cpd

Title: Design and specification of Western Red Cedar Shingles

This CPD is suitable for architects and specifiers. The CPD presentation covers:

- An introduction to shingles and shakes
- Legal and ethical procurement (including EU timber regs)
- Using shingles to help meet low carbon targets
- Performance (including durability, treatment, lifecycle analysis)
- Standard details
- Blue label certification – why is it important?
- Installation and maintenance

GLAZING VISION

C: www.glazingvision.co.uk/contact/request-cpd/
T: 01379 658300
E: sales@glazingvision.co.uk
W: www.glazingvision.co.uk/contact/request-cpd/

Title: Specifying Glass Rooflights

This 1 hour RIBA approved CPD seminar will give you a thorough understanding of the challenges involved when specifying glass rooflights, what should be considered and the options available on the market today, so that ultimately you can make the right choice when it comes to selecting a supplier or product.



E: training@schluter.co.uk
T: 01530 813396

Title: 1 Integrated Solutions for Tiled Wetrooms

The session will provide the information and knowledge required when specifying an integrated solution for wetroom installations; Schlüter's waterproofing and wetroom range will be explored and explained.

Title: 2 Movement Joints and Uncoupling Membranes for Tiled Coverings

This session provides information on how to solve problems such as moisture movement in the substrate or drying shrinkage by specifying the appropriate movement joints and uncoupling membranes at the specification phase.



T: 020 685 9685 W: www.comar-alu.co.uk
E: projects@parksidegroup.co.uk

In two RIBA assessed seminars, Comar, one of the UK's leading aluminium systems companies, outlines:

Title 1: Stand & Deliver: a Study of Curtain Walling

The design of curtain walling, its properties and how it is used by specifiers. This seminar aims to offer an understanding of the points of H11 in the NBS specification system, and how best to make use of it.

Title 2: Designing Functions & Reliability into Entrances

The issues that influence the function of main entrance design and technology. This seminar aims to offer an understanding of how user expectation influences door design and links this with hardware selection, entrance configuration and floor finishes.



T: 01634 835290
E: sales@marmox.co.uk
W: www.marmox.co.uk

Title: Part L and Thermal Bridging at the Floor to Wall Junction

The one hour seminar is comprehensive in its approach to a problem that has been underlined by changes to the Building Regulations, and the introduction of Fabric Energy Efficiency Standards (FEES). To avoid suffering costly penalties in SAP calculations this CPD explains in detail the various options available when tackling heat loss around the perimeter to floors and the sizeable advantage that utilizing Marmox ThermoBlock can offer.



T: +44 (0)121 508 6970.
E: info@mapei.co.uk
W: www.mapei.co.uk

Title: Swimming Pool Construction

Mapei (UK) has launched a new Swimming Pool Construction CPD seminar. The new technical seminar will assist in the specification of correct materials, in accordance with current BS and EN Standards. Seminars can be arranged to suit group or specific needs.

The new CPD is 30 minutes duration, followed by a Q&A session.



W: www.mumfordwood.com
T: 01621 818155

Title: Growing our Low-Carbon Economy

Content looks at the many benefits that can be derived from the expansion of wood-based products in construction and how this development can grow the UK's low-carbon economy. The article considers the source and future of sustainable jobs and growth within the sector and the important role timber has to play in building more homes with zero carbon solutions.



C: elizabeth@urbanfront.co.uk
T: 01494 778787
W: www.urbanfront.co.uk

Title: New RIBA Certified Worktop Tour – Book for 10th March 2015

Learning outcomes:

- A good understanding of how a contemporary hardwood door is manufactured
- A better understanding of the types of hardwood and their benefits
- A good ability to interpret CADs used for manufacture
- A better ability to specify doors correctly
- An understanding of the various issues related to making doors.



Save space with no compromise on style

As many new house builds have a reducing family bathroom footprint, and to respond to the growing popularity of en-suites, Twyford's recently launched e200 space-saving range of sanitaryware and furniture, packed with smart design and clever features to bring bigger-bathroom benefits to compact spaces. Fashionable furniture is available in high gloss white and grey and the 500mm and 650mm furniture units come with an integrated side towel rail and door.

w: www.twyfordbathrooms.com



Porthole vision panels for doors and walls.

Philip Watts Design offer a wide range of porthole vision panel kits in a variety of shapes sizes and materials. From simple single glazed aluminium circles, to high specification 1 hour fire rated DDA compliant double glazed stainless steel lozenges. Manufactured in the UK, bespoke shapes, sizes and finishes are easily accommodated. Call now or visit the web site for more details.

t: 44 (0) 115 926 9756

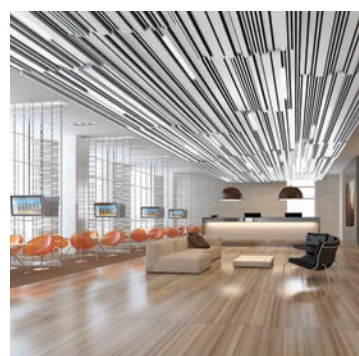
w: www.philipwattsdesign.com



NVELOPE's online Project Checklist

provides a complete, project specific cladding solution for architects, with a very fast turnaround. Architects simply need to access the Project Checklist section at www.nvelope.com and complete the simple two step data entry process. This demands project information on façade type, façade weight, average panel size, building height and storey height, substrate type, fixing method and cladding zone. Once submitted, NVELOPE's technical support team will provide a full Project Checklist response.

w: www.nvelope.com t: (0)1707 333 396



Hunter Douglas showcases innovation at unique event

Hunter Douglas will be exhibiting at the ground-breaking Architect@Work at London Olympia on January 21st and 22nd 2015. Hunter Douglas will be displaying its innovative BXD ceiling, flat folding shutters and QC200 facades at the event. The company will have representatives on the stand with extensive technical knowledge who are able to provide visitors with the ideal solution for their specific case.

e: info@hunterdouglas.co.uk

w: www.hunterdouglas.co.uk



Hansgrohe launches Axor Citterio E: The Essence of Luxury

Designed by Italian architect and designer, Antonio Citterio, the new Axor collection of bathroom fittings exude elegance, high quality and worth.

Axor Citterio E is characterised by a balanced contrast of smooth shapes, clean lines and precious surfaces, and offers exceptional ease of use. All 37 products share a visually appealing and harmonious look that complements a variety of styles.

e: enquiries@hansgrohe.co.uk

w: www.hansgrohe.co.uk



Stone cladding, a natural complement to traditional brick

Morris Homes chose Taylor Maxwell's Stonepanel™ natural stone cladding to put the finishing touches to the 80 homes in the rural phase of the Vista development. The site off London Road in Peterborough is the country's largest zero carbon housing development and was voted the winner of the Best Low or Zero Carbon Initiative at the 2013 Housebuilder Awards.

w: www.taylormaxwell.co.uk/

stonecladding-morrishomes

e: cladding@taylor.maxwell.co.uk



Architectural Designs Awards launched

Entries are now invited for the 2015 European Copper in Architecture Awards 17 – a celebration of contemporary architecture and showcase for architects designing with copper and its alloys.

This biennial awards programme continues to grow in stature, with a record 82 entries in 2013.

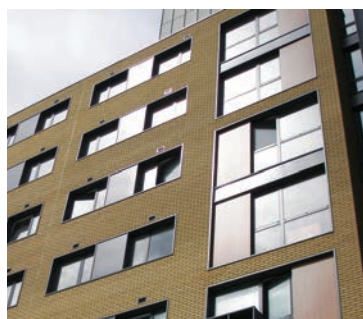
It not only demonstrates exemplary and innovative uses of copper in contemporary design but also offers wider exposure of the very best in architectural projects around Europe, some of which might otherwise go unrecognised.

All entries must incorporate cladding, roofing, or other architectural elements of copper or copper alloys, but judging criteria will essentially be based around the overall architectural qualities of the project.

Any scale or type of project can be entered, from major landmark buildings to modest installations.

The final deadline for receipt of entries is 30th April 2015. Full details and entry form can be downloaded from.

w: www.copperconcept.org



Comar Window Systems Improve Performance

With ever-increasing demands on the performance of glazing and opening vents, Comar Architectural Aluminium Systems have developed and rigorously tested their aluminium window systems to meet the very latest performance and specification demands, ensuring their clients have a future proof solution. The Comar range of solutions, Comar 5Pi and Comar 9Pi High Performance window systems, offers specifiers a comprehensive single source solution that achieves an increased range of window sizes.

w: www.comar-alu.co.uk



Kingspan insulation for 19th century church

Products from Kingspan Insulation's Kooltherm and Therma ranges have been used to help transform a dilapidated 19th Century old church as part of Channel 4's Restoration Man series. The stone walls of the Grade B listed building were insulated using two layers of 60 mm thick Kingspan Kooltherm K12 Framing Boards combined with a layer of Kingspan Kooltherm K18 Insulated Plasterboard, which had an insulation thickness of 30 mm.

w: www.kingspaninsulation.co.uk



Step up safety

Building designers, Local Authorities, Housing Associations and building owners have a 'Duty of Care' to build and maintain premises that not only minimise fire risk but also to reduce the loss of life, injury and damage to property if a fire was to start.

Specifiers overseeing winter maintenance schedules can introduce Crown Trade Timonox Flame Retardant Coatings to underpin fire safety management programmes.

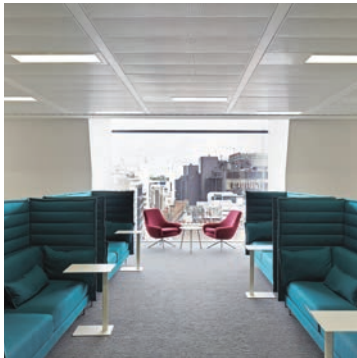
w: www.crownpaintspec.co.uk



Hat trick for Gerflor

Gerflor products were chosen for this new £4.2 M Pacific Care project throughout Glasgow and Renfrewshire. The rigorous specification process had to include flooring solutions for corridors, day rooms and toilets. Gerflor's Taralay Impression Comfort flooring was chosen for the residents' day rooms and corridors while Tarasafe™ Geo vinyl safety flooring treated with Sparclean® was chosen for the toilet areas. Both of these products are 100% recyclable.

e: contractuk@gerflor.com
w: www.gerflor.co.uk



The perfect flooring solution for First State Investments

Gensler, the global architectural practice, chose Quadrant Carpets to supply 1620m² of carpet tiles for the prestigious relocation project for First State Investments, a global investment management corporation based in the City of London. Gensler established clear flooring criteria from the outset of the design process, and the Elements range was the perfect fit; the high quality construction, subtle texture and contemporary colours coordinating seamlessly with the other components of the scheme.

w: www.quadrantcarpets.com/products



White Oiled Parquet Floor in Solid Oak New from Junckers

Junckers has added a new look to its collection of parquet floors. The Single Stave Blocks floor has been given a contemporary, Scandinavian update with Rustic White Oil. Made in solid Oak blocks available in two sizes, Single Stave Blocks can be laid in several patterns, including basket weave, herringbone and ladder. More shades, such as Anthracite Grey, Black, Walnut, Cherry and Mahogany, can be achieved with Junckers' Rustic Oil, an easy to apply oil which can be over coated with lacquer for durability.

w: www.junckers.co.uk



Alumasc Flushjoint Specified For Bord Gáis Networks Services Centre

Flushjoint Aluminium Rainwater Systems from Alumasc have been specified for one of Ireland's leading sustainable buildings. The award-winning Networks Services Centre is home to Bord Gáis Networks, which owns, operates, builds and maintains the natural gas network in Ireland. The landmark building, designed by Denis Byrne Architects, provides a modern working environment boasting a total floor area of 5200m², housing offices, the National Technical Training Centre and 24/7 operations and emergency response facilities.

Alumasc's Flushjoint extruded aluminium rainwater system was specified for the project because its clean lines perfectly complemented the contemporary linear design of the building. Over 115m of 100mm diameter Flushjoint was installed by the main contractor Walls Construction.

Constructed from 100% recyclable aluminium, Flushjoint offers a cost-effective, lightweight, durable and highly corrosion resistant alternative to uPVC, offering an impressive life expectancy of up to 40 years.

w: www.alumascrainwater.co.uk



Keramag Design's new Universal cistern unit

The cleverly designed Universal cistern unit, from luxury brand Keramag Design, provides a surface-mounted design solution to make installation easier in spaces where a cistern cannot be easily placed into a supporting wall.

The unit is compatible with a number of Keramag Design wall-hung and back-to-wall toilets. Made from high-quality glass, Universal is available in white, black and taupe. Fitting is quick, easy and requires no specialist tools.

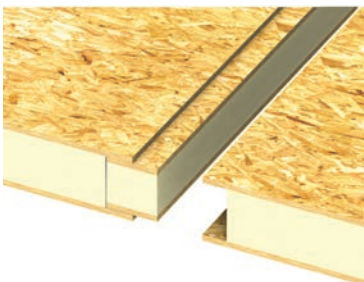
w: www.keramagdesign.com



Mapei floor system provides peak performance at sporting trio

Mapei floor systems have been installed at three leisure complexes, in Fife and Aberdeen. They include a new £18M regional sports academy in Glenrothes. The floor specification included Mapei Mapescreed 704 and screeds containing Mapei Topcem binder; a high performance, fast-drying hydraulic binder which reduces installation time to 24 hours for ceramic and two days for stone tiling. Mapei Mapeprim SP synthetic resin-based and solvent-free primer was then applied.

w: www.mapei.co.uk



Thicker Kingspan TEK® Panels announced

The Kingspan TEK® Building System and Kingspan TEK® Cladding Panels are now available in a new 172 mm panel thickness. Both comprise two layers of Oriented Strand Board type 3 (OSB/3) either side of a high performance insulated core.

The Kingspan TEK® Building System and Kingspan TEK® Cladding Panels can directly contribute towards a number of BREEAM credits including responsible sourcing and life cycle impacts.

w: www.kingspantek.co.uk



Transparency and fluidity

A space for relaxation and leisure activities requires special attention to detail. The reception and bar for the Promenada Shopping Center, Bucharest Romania, are made of HI-MACS® Alpine White that has been thermoformed, creating a curvy, fluid area. Since the solid surface material allows invisible joints, the furnishings appear as one homogenous piece. A spectacular translucent effect is achieved, to signal each zone destination, by engraving the solid surface and illuminating it.

w: www.himacs.eu



MARTIN CHARLES / RIBA LIBRARY PHOTOGRAPHS COLLECTION

Red house Bexleyheath, 1860

2015 marks the centenary of the death of Philip Webb, the father of Arts and Crafts architecture in Britain. Webb's most famous building was his first – the Red House in Bexleyheath for William Morris completed in 1860. In fact, Webb and Morris designed the house together, having become friends while working for architect George Edmund Street in 1856, and it has been described as 'a complex fusion of Morris's romantic utopianism and Webb's practical common sense'. Morris's fellow Pre-Raphaelite Edward Burne-Jones was a regular visitor, describing the house as 'the beautifullest place on earth',

and a forgotten mural by the painter has recently been uncovered in a bedroom. The house was heavily influenced by Morris's favoured medievalism and was constructed with an emphasis on craftsmanship and artisanal skills. It was a shared appreciation of the workmanship of the past and concern for the Victorian idea of restoration – which often meant stripping away all evidence of a building's history – that in 1877 prompted Morris and Webb to found the Society for the Protection of Ancient Buildings, today Britain's oldest preservationist body. ●

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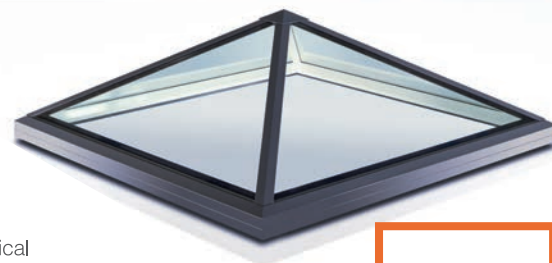
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